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CONTENTS AND SUBJECT INDEX

The Hemorrhagic States. Stacy R. Mettier, M.D., with assistance of Katherine Purviance, A.B., San Francisco 83
Discussed by Drs. Reed and Mettier.

Encapsulated Brain Abscess. E. A. Kahn, M.D., Ann Arbor, Mich...87
Discussed by Drs. Spurling, King, Dandy, Fay, Jaeger, Bailey, Kahn and Grant.

Insulin Shock Therapy in Schizophrenia. Julius Steinfeld, M.D., Peoria, Ill.....91

The Physician and the Traffic Problem. Lowell S. Selling, M.D., Detroit 93

A Pharmacologic Study of the Toxemia Theory of Surgical Shock. Carl A. Dragstedt, M.D., and F. B. Mead, M.S., Chicago.....95
Discussed by Drs. Leake and Dragstedt.

Menstrual Disorders. John C. Burch, M.D.; G. S. McClellan, M.D.; Claud D. Johnson, M.D., and E. T. Ellison, M.D., Nashville, Tenn..96
Discussed by Drs. Pratt, Hamblen and Burch.

Management of Facial Injuries Caused by Motor Accidents. C. L. Straith, M.D., Detroit.....101

Chronic Thyroiditis. R. H. Jaffé, M.D., Chicago.....105
Discussed by Drs. Seed, Asher, Carlson and Jaffé.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Parathyroid Adenoma. Sylvan E. Moolten, M.D., New York; Francis M. Clarke, M.D., and Henry Haywood, M.D., New Brunswick, N. J.....111

Pigmentation. Richard L. Sutton Jr., M.D., Kansas City, Mo.....112

SPECIAL ARTICLE

Practical Clinical Photography. Lewis R. Wolberg, M.D., Kings Park, N. Y.....113

COUNCIL ON PHYSICAL THERAPY 119

EDITORIALS

Mortality from Heart Disease...120

The Conference on Syphilis.....121

CURRENT COMMENT

American Medical Association Bulletin Section.....122

What's in a Name?.....122

BUREAU OF LEGAL MEDICINE AND LEGISLATION 144

(Subject Index on next page)

BULLETIN SECTION
Facing page 162

The Home of the American Medical Association 9B

Rural Medical Service.....11B

Official Notes.....14B

Woman's Auxiliary.....14B

Medical Economics Abstracts...15B

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "MI," Medicolegal; "ME," Medical Economics.

A. M. A. BULLETIN....E-122
Acetylcholine injected intra-arterially, muscle reaction to....133
Adenoma, parathyroid, bio-assay....*111
Air, smoke evil....128
Allergic shock....ab-151
Anemia in chronic thyroiditis....*105
in tuberculous....ab-162
Anesthesia, local, in minor gynecologic operations....ab-161
nitrous oxide-oxygen, cerebral cortex destroyed after....ab-146
of ganglions....ab-159
Apnea, voluntary, in thyrotoxicosis....ab-153
Arcé, Jose, lectures by....125
Arrhythmia, extrasystoles....139
Arteries, disease, peripheral nerve block to relieve pain....ab-147
Arthritis, jaundice in....ab-154
Athletic contests and menstruation....ab-160
Automobile accidents, facial injuries from.*101
traffic problem and physiciahs....*93
Axilla, primary mammary cancers in....ab-158
Benzedrine inhaler, irritation from....140
Bile Ducts, air in, as roentgen sign of biliary fistula....ab-153
Biology and medicine....130
Bland-Sutton, Sir John, death....127
Blood, chronic leukemic, small corpuscle in....ab-158
circulation (peripheral) in surgical shock....ab-150
grouping in forensic medicine....ab-150
grouping, interfering agent in....ab-154
pressure, postural hypotension....ab-147
sugar, response to protein and carbohydrate....ab-150
transfusion of conserved blood....ab-161
transfusion with incompatible blood, nephrosis after....ab-147
Board Examinations....141
Book Notices....142
Books Received....Adv. Page 34
Bordo, José, death....133
Borrel, Amédée, death....130
Brain abscess (encapsulated), treatment....*87
destruction of cortex after nitrous oxide-oxygen anesthesia....ab-146
gliomas, roentgen consideration....ab-152
Breast, primary cancers in axilla....ab-158
tuberculosis....ab-148
British Medical Association, "associate members"....128
Bureau of Investigation....135
Bureau of Legal Medicine and Legislation....144
Calcium, rôle in overbreathing tetany....ab-157
Chordoma of pons and medulla....ab-155
Chorea, typhoid parathyroid vaccine for..ab-152
Climate, change after pneumonia....138
Constitution, national physique, England....128
Copperas, skin pigmentation from....*112
Correspondence....136
Coughs, treatment....139
treatment, Percol....139
Council on Physical Therapy....119
Cutter, Irving, medical director of C. & N. W....123
Cystine, storage....ab-156
Dacken, V. R., new president-elect, Wyoming....127
Dallas Clinical Society conference....126
Deaths....134
Dementia Praecox, insulin shock therapy....*91; 125
Diabetes Mellitus, insulin in....ab-148
Diaphragm relaxation, pathogenesis....ab-160
Diatussin....139
Diphtheria bacillus types in Illinois....ab-149
Dracontiasis, fish to control....ab-156
Ducks, paratyphoid infection from....132
Duodenitis complicating spleen suppuration.131
Dwarfism, cystine storage and....ab-156
Dysentery, bacillary, in Saskatchewan....127
Economics, Medical, Medico Gremial Argentinian Congress discuss....133
Encephalomeningitis; lymphatic reaction..ab-160
Epidemics, news of....127
Esophagus, cancer, diagnosis....ab-158
Estrogen treatment of vaginitis....ab-154
Face injuries caused by motor accidents...*101
Feces, tubercle bacilli in cultures....ab-158
Fetus, crying, in utero....140
Fever, therapeutic, death from, in syphilis..138
therapeutic, heart during....131
Fistula, biliary, roentgen sign....ab-153
Flies, muscid, Treponema pertenue transmitted by....ab-156
Food consumed, indexes, Italy....132
Foreign Letters....128
Frambesia, transmission by flies....ab-156
Fructose, disposal by liver....ab-157
Fruits, disinfection experiments....ab-161
Garlic odor....C-136
Gastro-Intestinal Tract, postoperative derangements....ab-152
Goiter, Hashimoto's....*105
Gonorrhea, estrogen treatment of vaginitis.ab-154
Government Services....127
Growth, accelerated....ab-160
Health at New Orleans....124
unit, first district, Ia....124
Heart, Chicago Heart Association....123
disease, extrasystoles due to....139
disease, mortality....E-120
output during induced fever....131
rates, electrocardiograph in determining..140
Hemoclastic Crises, splenectomy for....ab-147
Hemophilia, pseudotumor....ab-149
Hemorrhage, classification and treatment...*83
Hodgen Lecture....125
Hog cholera and Salmonella suipestifer...C-137
Horseradish, compound spirit of....140
Hospital physicians to be paid, Buenos Aires.133
Houssay, B. A....133
Huber, G. C., memorial volume....124
Hyperthyroidism....130
Impotence, tightening bulbocavernosus muscle for....ab-151
Infant feeding, use of frozen milk in....139
Inflammation, short wave irradiation in...ab-159
Influenza, quarantined for....123
Insulin shock therapy in schizophrenia.*91; 125
Iron, pigmentation of skin due to....*112
Jaundice in arthritis....ab-154
obstructive, x-ray differential diagnosis.ab-153
Kidney disease after transfusion....ab-147
Knee, tuberculosis, punch biopsy in....ab-146
Labor, manual dilation of os uteri....ab-159
Lead poisoning in tobacco workers....132
Leukemia, chronic, small corpuscle in blood....ab-158
remission during....ab-162
Liver, cirrhosis, prognosis....ab-158
disposal of fructose by....ab-157
suppuration complicated by duodenitis....131
Lymph Nodes, calcified mesenteric nodes.ab-153
reaction and encephalomeningitis....ab-160
Marriages....133
Medical Care for indigent, Pa....126
Medical Examinations and Licensure....141
Medical Press, International Congress of..131
Medicine and biology....130
problems of....130
Medico Gremial Argentinian Congress....133
Medicolegal Abstracts....144
Medulla Oblongata, tumors....ab-155
Meetings, Coming Meetings....144
Menstruation and athletics....ab-160
disorders, diagnosis; classification....*96
Mental Depression in puerperium....ab-159
Mononucleosis, infectious, heterophile antibodies in....ab-149
Motion Picture operator, state, Indiana....123
Muscles, reaction to acetylcholine injected in humeral artery....133
tightening bulbocavernosus for incontinence....ab-151
Navarro, Juan Carlos, death....133
Nephritis, chronic vs. cystine storage....ab-156
Nerve block, peripheral, relief of pain by, in arterial diseases....ab-147
Neurodermatitis, dietetic treatment....ab-160
Neurology, new syndrome, Palestine....ab-161
News....123
Ophthalmology, first Argentinian Congress..133
Osteitis fibrosa, generalized, bio-assay of parathyroid adenoma....*111
Ovary hypofunction, cause of menstrual disorders....*96
Paralysis, General, of insane, sedimentation reaction in....ab-161
Parathyroid adenoma, bio-assay....*111
Paratyphoid infection, transmission by ducks.132
Paternity: blood grouping tests to determine....MI-144
Peptic Ulcer of lesser curvature....131
Percol....139
Philadelphia County Medical Society....126
Photography, practical clinical....*113
Physician and traffic problem....*93
German convention....130
practicing, temporary substitutes, France..129
Physician, retired, protection for, by Medical Defense Union....128
Pituitary, anterior, dysfunction, cause of menstrual disorders....*96
Placenta, vitamin C in....ab-159
Pneumonia, climatic change after....138
inability of elderly patient to empty bladder after....139
Pneumoperitoneum, organic modifications induced by....131
Poison Act, fines imposed under....127
Pons varolii, tumors....ab-155
Postage Stamps, medical....123
Pregnancy, Trichomonas vaginalis vaginitis in....ab-159
extra-uterine, porphyrinuria in diagnosis....ab-159
Prizes, Argentine, awarded....133
Pseudotumor, hemophilic....ab-149
Psychoanalysis, lectures on, Chicago....123
Puerperium, mental depression in....ab-159
Purpura haemorrhagica, irradiate spleen in..*83
Schönlein-Henoch's, cevitamic acid in..ab-162
Queries and Minor Notes....138
Radaeli, Francesco, death....132
Radiation sickness prevented by mask....ab-146
Radiologists award medals....127
Reticulo-Endothelial System, cystine storage....ab-156
Reynolds, F. P., honored....125
Rheumatism, infected tonsils and....ab-157
Rickets, physical deformities due to....ab-155
Rowland, James M. H., honored....124
Salmonella suipestifer and hog cholera....C-137
Sauerbruch on principle of scientific freedom.130
Scarlet Fever, so-called recurrence....ab-162
Schiller, W., to lecture in Toledo....126
Science, natural, problems of....130
Scientists, German, convention of....130
Scurvy, subclinical, hemorrhagic states....*83
Shockley, General, retires....127
Skin, pigmentation from iron applied locally.*112
Social Hygiene day....127
Società Medico-Chirurgica of Pavia....131
Society Proceedings....144
Spinal Cord, lesions....ab-155
Spine, cervical, injuries....ab-155
Spleen, irradiation in thrombocytopenic purpura haemorrhagica....*83
suppuration complicated by duodenitis....131
Splenectomy for hemoclastic crises....ab-147
State Board Examinations....141
Surgery, eighth Argentinian Congress of...133
peripheral blood flow in shock....ab-150
toxemia theory of shock....*95
Syphilis, conference on....E-121
death from hyperpyrexia in....138
Tetanus antitoxin and toxoid, duration of immunity....140
Tetany, spontaneous overbreathing, rôle of calcium....ab-157
Theobald Smith Lecture....125
Thrombosis, postoperative....129
Thyroid, chronic thyroiditis....*105
disease, voluntary apnea in....ab-153
hypofunction cause of menstrual disorders.*96
Tobacco workers, lead poisoning in....132
Tonics and Sedatives....Adv. Page 24
Tonsils, infected, relation to rheumatism in children....ab-157
Toxemia theory of surgical shock....*95
Trichomonas vaginitis, new arsenical in..ab-145
vaginalis vaginitis in pregnancy....ab-159
Tubercle Bacilli in stool cultures....ab-158
Tuberculosis campaign, Amsterdam....133
Tuberculosis, Pulmonary, anemia in....ab-162
artificial pneumothorax in, effect on bacillary count....ab-146
from bovine type of bacillus....ab-162
thoracoplasty in....ab-162
Ureter, vascular obstruction in children..ab-150
Urination, incontinence, tightening bulbocavernosus muscle for....ab-151
Urine, porphyrinuria in extra-uterine pregnancy....ab-159
retention, in elderly after pneumonia....139
Uterus cancer, complications....ab-145
cancer, iliac lymphadenectomy and irradiation in....ab-145
manual dilation of os....ab-159
Vagina acidity, estrogen produces....ab-154
Vagitus uterinus....140
Virus, culture....131
Vital Statistics, mortality, Netherlands....132
accurate birth registration....E-122
Vitamin C in placenta....ab-159
Waggoner, R. W., named professor of psychiatry....124
Wayne County Medical Society....124
Wills: testamentary capacity; glands, endocrine; dysfunction of in relation to.MI-144

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CLASSIFICATION AND TREATMENT OF THE HEMORRHAGIC STATES

VALUE OF ROENTGEN IRRADIATION OF THE SPLEEN IN ESSENTIAL THROMBOCYTOPENIC PURPURA HAEMORRHAGICA

STACY R. METTIER, M.D.

WITH THE TECHNICAL ASSISTANCE OF KATHERINE PURVIANCE, A.B.

SAN FRANCISCO

Werlhof [1] first published his description of "morbus maculosus haemorrhagicus" in 1775, but knowledge concerning the nature of hemorrhagic disease has been slow in advancement. Since his publication, many attempts have been made to segregate various clinical types of purpura and to define their relationship to a defect in the clotting mechanism. Although efforts to explain the many etiologic factors concerned and the particular defect involved have not been entirely successful, certain aspects have been clarified by recent contributions to hematology. In view of the additional new facts, the present discussion will be devoted to a partial reclassification of the hemorrhagic disorders and to methods of treatment.

CLASSIFICATION OF THE HEMORRHAGIC STATES

Hornung [2] in 1734 divided purpura into three groups: purpura simplex, febrile purpura, and purpura scorbutica. Since then from time to time various attempts have been made to subdivide purpura into clinical entities. Among these endeavors may be mentioned the contributions of Willan,[3] Schönlein,[4] Henoch,[5] Morawitz [6] and Kugelmass.[7] At present it must be recognized that the difficulties inherent in the problem of bleeding and blood clotting offer limitations in constructing an entirely satisfactory classification of the hemorrhagic states. Pepper and Farley,[8] in their textbook on hematology, give a clearer concept of the fundamental factors involved by means of a classification based largely on a deficiency of certain elements essential to coagulation. A classification from a clinical point of view may be made, as in the accompanying tabulation, depending on the defect in the clotting mechanism or the vascular tree.

In addition to a carefully taken history of the course of illness and a thorough physical examination, laboratory aid is necessary for the diagnosis of hemorrhagic diseases. The laboratory procedures should include, as recorded in figure 1, the red blood cell count and hemoglobin concentration, the hematocrit determination, and the white blood cell and differential counts. These are done to determine whether or not anemia is present, and its type if present; whether the bone marrow is showing changes characteristic of leukemia or of one of the leukemoid processes. In all types of hemorrhagic disease it is especially important to enumerate the platelets and to determine the bleeding time and the time required for a specimen of blood to coagulate and to retract. In addition to these, it may be necessary to determine the fibrinogen content of the blood plasma and the degree of resistance or fragility of the platelets as evidenced by the prothrombin time.

In recent years it has become more and more apparent [7] that lessened capillary resistance or increased fragility is associated with spontaneous bleeding into the skin. An estimation of the capillary resistance may be made by the so-called Hess,[9] Rumpel-Leede [10] or tourniquet test. A modification of this is the flicking test. If a more accurate estimation is required, the Dalldorf [11] apparatus may be employed, and the number of petechiae produced under negative pressure in a small area may be counted.

In all types of hemorrhagic disease resulting from decreased formation of platelets, the bleeding time is increased, capillary hemorrhages appear in the skin following slight trauma or venous stasis, and there is a failure of the clot to retract. The clot is formed within normal time. There may be considerable variability between the degree of capillary resistance and the platelet level. Some patients exhibit markedly increased permeability of the capillaries, although the number of platelets is well above 100,000 per cubic millimeter of blood.

Since specific nutritional elements are needed to maintain the integrity of capillaries [12] and to form liver and blood proteins, a detailed history of the dietary habits of the patient should be recorded.

On the basis of the information gained with regard to a familial hemorrhagic tendency, the physical signs and

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3. Willan, Robert: On Cutaneous Diseases, London, 1808, p. 452.
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5. Henoch, Edouard: Zusammenhang von Purpura und Intestinalstörungen, Berl. klin. Wchnschr. **5**: 517, 1868.
6. Morawitz, P.: Hämorrhagische Diathesen, Verhandl. d. deutsch. path. Gesellsch. **25**: 32-45, 1930.
7. Kugelmass, I. N.: Clinical Control of Chronic Hemorrhagic States in Childhood, J. A. M. A. **102**: 204 (Jan. 20), 287 (Jan. 27) 1934.
8. Pepper, O. H. P., and Farley, D. L.: Practical Hematological Diagnosis, Philadelphia, W. B. Saunders Company, 1933, p. 310.
9. Hess, A. F., and Fish, Mildred: Infantile Scurvy: The Blood, the Blood Vessels and the Diet, Am. J. Dis. Child. **8**: 386 (Dec.) 1914.
10. Leede, C.: Hautblutungen durch Stauung Hervorgerufen als Diagnostisches Hilfsmittel beim Scharlach, München. med. Wchnschr. **58**: 293, 1911.
11. Dalldorf, Gilbert: A Sensitive Test for Subclinical Scurvy, Am. J. Dis. Child. **46**: 794 (Oct.) 1933.
12. Wolbach, S. B., and Howe, P. R.: Intercellular Substances in Experimental Scorbutus, Arch. Path. & Lab. Med. **1**: 1 (Jan.) 1926.

the abnormalities of the blood, the hemorrhagic diseases may be classified, within limitations, as in the tabulation.

The actual cause of platelet deficiency in a given patient may be undetermined. Accordingly these may be designated as idiopathic or essential thrombocytopenia. Certain investigators are of the opinion that the spleen is responsible for the platelet deficiency, by actually destroying these elements of the blood,[13] by removing them by phagocytosis, or through some regulatory influence exerted on the megakaryocytes in the bone marrow.[14] Others [15] believe that severe bleeding from the mucous membranes may be associated with a deficiency of ovarian hormone and concomitantly with a reduction in the circulating platelets.

Classification of Hemorrhagic Diseases

I. Deficiency in blood-clotting elements
  A. Thrombocytopenic purpura
    1. Essential (idiopathic)
      a. Splenic
      b. Ovarian (David's disease)
      c. Deficiency in megakaryocytes
      d. Allergic (focal infections, drugs)
    2. Symptomatic
      a. Bone-marrow destruction
        Aplastic anemia
        Leukemia
        Myelophthisic anemia
        Arsenic intoxication
        Benzene
        Radium
        X-rays
        Septicemia
  B. Fibrinogen
    1. Liver disease (cirrhosis, chloroform and phosphorus poisoning, leukemia)
  C. Calcium
II. Abnormality in blood-clotting elements
  A. Obstructive jaundice (cysteine)
    1. Qualitative alteration of fibrinogen
  B. Hemophilia
    1. Qualitative blood platelet deficiency
III. Defect in vascular mechanism
  A. Allergy
    1. Schönlein-Henoch's purpura
    2. Focal infection
  B. Nutritional
    1. Scurvy (vitamin C deficiency)
    2. ? Protein deficiency
  C. Infectious diseases
    1. Subacute bacterial endocarditis
    2. Acute infectious diseases
  D. Arteriosclerosis
  E. Toxic (snake venom, histamine, quinine, potassium iodide, phenolphthalein)
  F. Congenital
    1. Hereditary hemorrhagic telangiectasia

The relationship between the megakaryocyte and the formation of platelets is still a matter of controversy. In a recent study on patients with idiopathic thrombopenic pupura, Lawrence [16] found that in this disease the bone marrow may present no abnormal morphologic characteristics or the megakaryocytes may be abnormal. Further studies such as his, by biopsy methods, are indeed indicated in this disease. Should the megakaryocyte in time be definitely proved to be the precursor of the platelet, a more satisfactory explanation may be offered of depressed marrow function, especially that occurring in association with certain allergic phenomena and infectious diseases and following the ingestion of certain drugs.[17] However, it is well recognized that malignant neoplasms, leukemia, septicemia, arsenic, benzene, x-rays and radium may depress platelet production either through mechanical or through chemical destruction of the bone marrow.

In the presence of marked destruction of hepatic tissue or obstructive jaundice the blood fibrinogen may be quantitatively or qualitatively altered. Although formerly it was thought that calcium deficiency was responsible for the bleeding tendency of the jaundiced patient, it has been shown by Carr and Foote [18] that no important quantitative change in the clotting elements occurs but that the quality of fibrinogen and fibrin is definitely altered. These investigators believe that this is due to an accumulation in the blood of incompletely metabolized products of proteins, probably cysteine and its related mercaptans.

The relationship between the vascular system and an increased tendency to hemorrhage has not been adequately studied. It is presumed that the minute capillaries become weakened by sensitization through some bacterial product or drug and thus exhibit an allergic state. Often during the course of infectious diseases—epidemic meningitis, typhoid—petechial hemorrhages appear in the skin through interaction of the bacterial toxin on the endothelial structures or by actual lodgment of bacterial emboli. When the arterioles are altered by arteriosclerotic changes, they may be easily ruptured following slight trauma and thus account for ecchymoses found on the backs of the hands of elderly persons.

Further than this, easy bruising should make one think of a deficiency in vitamin C. It is now well recognized that subclinical scurvy [19] may exist without evidence of gross subcutaneous or subperiosteal hemorrhages and may be suspected in a person subsisting on an inadequate diet. Case 1 is an example of this:

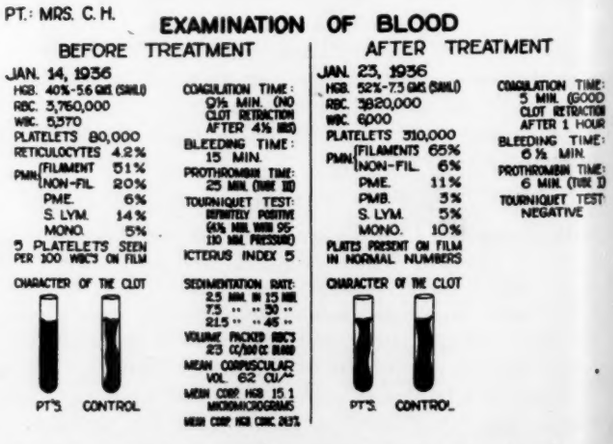

Fig. 1 (case 2).—Laboratory aids necessary for the diagnosis of hemorrhagic diseases. Before and after roentgen irradiation over the spleen.

CASE 1.—*Subclinical scurvy; hypochromic anemia; menopausal psychosis.*

History.—K. R., a widowed Irish woman, aged 46, entered the San Francisco Hospital April 15, 1935, in the service of Dr. L. H. Briggs, because of weakness and dizziness. For two years prior to entry, a variety of complaints had developed among which were almost constant occipital headache and vague pains in the left side of the body, the left arm, left leg and left side of the chest. An intractable insomnia had developed and she had noted hot and cold flushes passing over her body. Her menstrual periods had become slightly irregular and

13. Brill, N. E., and Rosenthal, Nathan: Treatment by Splenectomy of Essential Thrombocytopenia (Purpura Haemorrhagica), Arch. Int. Med. **32**: 939-953 (Dec.) 1923.
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17. Loewy, F. L.: Thrombopenic Purpura Due to Idiosyncrasy Toward Hypnotic Sedormid (Ureide Preparation) Allergotoxic Effects, Lancet **1**: 845 (April 21) 1934. Stephan, R.: The Reticulo-Endothelial Cellular System of the Spleen in Relation to Blood Coagulation, München. med. Wchnschr. **67**: 309 (March 12) 1920.
18. Carr, J. L., and Foote, F. S.: Progressive Obstructive Jaundice: Changes in Certain Elements of the Blood and Their Relation to Coagulation, Arch. Surg. **29**: 277-296 (Aug.) 1934.
19. Mettier, S. R.; Minot, G. R., and Townsend, W. C.: Scurvy in Adults, J. A. M. A. **95**: 1089 (Oct. 11) 1930.

the flow more profuse than formerly. For ten years her dietary habits had been improper but during the past two years had been exceptionally so because of anorexia. Her breakfasts consisted of rolled oats with a small amount of milk and coffee, and for lunch she usually ate two or three slices of bread with the addition, about once or twice a week, of a helping of lima beans. The evening meal was usually more liberal

Fig. 2 (case 1).—Petechial hemorrhages on the forearm of patient with subclinical scurvy as result of positive test with tourniquet.

and consisted of soup and potatoes, cooked carrots or lima beans about twice a week, one slice of tomato about once in two weeks, and ham or corned beef every Sunday. She has neither cared for, nor does she eat, oranges or other fresh fruits and vegetables.

Examination.—The patient appeared slightly undernourished, in no obvious distress but with definite evidence of diminished mental acuity. The skin was pale, warm and moist, and there was no evidence of eruptions. The mouth was edentulous, and the tongue was slightly glossy and smooth but not tender. There was no lymphadenopathy. Neither the spleen nor the liver was enlarged. There was no edema of the ankles.

Laboratory Procedures.—The test meal revealed an achlorhydria. The blood examination showed red blood cells 3,300,000, hemoglobin 50 per cent (7 Gm.), color index 0.59 and leukocytes 3,850, with a normal differential count. The bleeding time was three minutes, and the platelets were 160,000 per cubic millimeter. A specimen of blood clotted in five minutes (method of Lee and White) and showed normal retraction. The sphygmomanometer cuff was applied above the elbow and inflated to just below systolic pressure. At the end of five minutes a shower of petechial hemorrhages appeared down the forearm, and about seventy-five were counted in an area 2.5 cm. in diameter. This is considered a definitely positive result of the tourniquet test.

Course of Illness.—A diet consisting of boiled milk and crackers was prescribed for the patient in order to eliminate the ingestion of foods containing vitamin C. She was given daily intravenous injections of 150 mg. of the sodium salt of cevitamic acid. On the fourth day of treatment the sphygmomanometer cuff was again applied to the arm and inflated, but very few petechiae appeared. This was considered a negative result of the tourniquet test. Figure 2 is a reproduction of a photograph showing the petechial hemorrhages that appeared in response to the tourniquet test prior to the treatment with the sodium salt of cevitamic acid, and figure 3 shows the result of a negative test four days later.

TREATMENT OF THE HEMORRHAGIC DISEASES

The foregoing is an example of the satisfactory treatment of subclinical scurvy with the sodium salt of cevitamic acid.

With regard to idiopathic thrombocytopenic purpura haemorrhagica, various methods of therapy have been suggested as being beneficial in the control of bleeding. Among the various drugs that have been used with supposedly beneficial results may be mentioned shock therapy with foreign protein, liver extract [20] both by mouth and parenterally, iron, ergot, snake venom [21] and cevitamic acid. Frequently more than one factor is operative in the causation of the hemorrhagic tendency, and the bleeding represents a summation of the various abnormalities. Accordingly, various methods of therapy must be used before satisfactory results may be expected. A dietary regimen has been suggested by Jones and Tocantins [22] and by Kugelmass [7] for patients who have had an inadequate intake of protein and foods containing vitamin C. In cases of mild purpura associated with a focus of infection, a permanent cure often follows the removal of the source of infection. Undoubtedly frequent transfusions of whole blood are of value in ameliorating symptoms in fulminating cases

Fig. 3 (case 1).—The forearm after four daily injections of the sodium salt of cevitamic acid. Note the fading petechiae and the failure of new ones to appear following the application of the tourniquet. (The larger pigmented areas are sites of venipuncture.)

of purpura. Removal of the spleen by surgical means is not entirely satisfactory. The mortality rate is high and a high percentage of patients have a recurrence of symptoms.[23]

20. Witts, L. J.: Pathology and Treatment of Anemia (Goulstonian Lecture), Lancet **1**: 809, 1932.
21. Taylor, K. P. A.: Apparent Cure of Purpura Haemorrhagica by Bothropic Antivenin, Bull. Antivenin Inst. America **3**: 42 (July) 1929.
22. Jones, H. W., and Tocantins, Leandro: The Treatment of Purpura Haemorrhagica, J. A. M. A. **100**: 83-88 (Jan. 14) 1933.
23. Kracke, R. R.: The Effect of Splenectomy in the Purpuric Diseases, South. Surgeon **2**: 203-211 (Sept.) 1933.

In 1920 Stephan [17] presented evidence showing cessation of hemorrhage in two patients with purpura fulminans following roentgen irradiation of the spleen. This was corroborated two years later by Bucky and Guggenheimer,[24] who additionally demonstrated a rise in blood platelets after this method of treatment. Since then there have been additional reports [25] in the literature emphasizing the usefulness of roentgen irradiation in patients with thrombocytopenic purpura haemorrhagica. Recently, Mettier, Stone and Purviance [26] concluded that a rapid rise in blood platelets occurred following irradiation of the spleen in five patients with this disease. Seven patients comprised the group for study. One patient died while under observation from an acute fulminating type of purpura. In another patient with chronic recurring purpura of two years' duration, splenectomy had been performed several months prior to roentgen irradiation. This patient subsequently had a recurrence of symptoms and on this

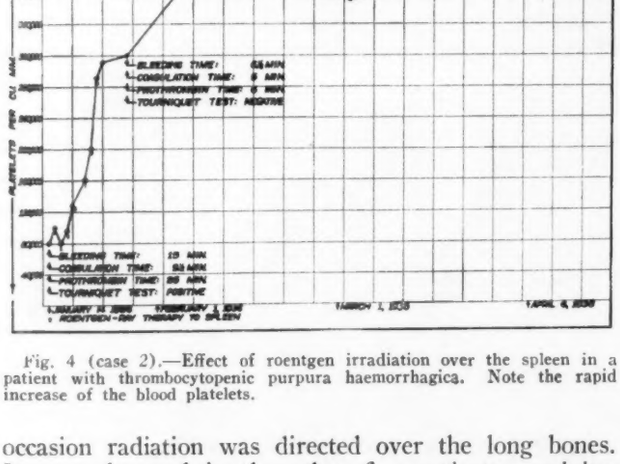

Fig. 4 (case 2).—Effect of roentgen irradiation over the spleen in a patient with thrombocytopenic purpura haemorrhagica. Note the rapid increase of the blood platelets.

occasion radiation was directed over the long bones. It was observed in the other five patients receiving treatment over the spleen and the patient receiving radiation over the long bones that an increase in circulating blood platelets was evident within from twenty-four to forty-eight hours after the first exposure to the roentgen rays. The platelets rose to as high as 250,000 and 500,000 per cubic millimeter in nine days, depending on the individual case. Treatments were given daily or every other day in doses of 200 roentgens until a total of from 1,200 to 3,300 roentgens was administered.

Since this report there has been an opportunity to observe an additional case, which may be reported as follows:

CASE 2.—*Recurring essential thrombocytopenic purpura haemorrhagica; hypochromic anemia.*

History.—C. H., a white American woman, aged 32, first visited her physician Aug. 4, 1935, complaining of bruising easily with slight trauma, bleeding from the gums and nose, profuse menses and generalized petechial hemorrhages in the skin and mucous membranes. In the past she had been well except for an attack of acute catarrhal jaundice five years previously. For many years she had been subject to frequent attacks of allergic dermatitis, and it was of interest to note that there was a familial history of asthma on the maternal side. She stated that she did not use any drugs except an occasional tablet of acetylsalicylic acid and that her diet included an abundance of fresh fruit and vegetables.

Examination.—The patient appeared fairly well nourished and developed. There were small purpuric spots distributed over the body and some oozing of blood from the gums. There was no demonstrable lymphadenopathy, and the spleen was not palpable; other than this, the physical examination showed no abnormalities.

Examination of the blood showed erythrocytes 4,280,000 per cubic millimeter, white blood cells 5,200 and a hemoglobin concentration of 78 per cent. The bleeding time was over fifteen minutes and the coagulating time, with a capillary tube, was eight minutes.

Course of Illness.—The patient was observed over a period of approximately five months, during which time she received on different occasions transfusions each of 500 cc. of whole blood, injections of calcium chloride, a diet rich in vitamin C, and finally injections of moccasin snake venom. During this time there were remissions and exacerbations of her illness, but at no time was she free of a hemorrhagic tendency.

Jan. 14, 1936, the patient was admitted to the University of California Hospital. The abnormal physical manifestations were essentially those just reported, and the patient showed spontaneous hemorrhages into the skin and mucous membranes. The spleen could not be palpated, and there were no obvious foci of infection.

The examination of the blood, as recorded in figure 1, showed erythrocytes 3,760,000 per cubic millimeter, a hemoglobin concentration of 40 per cent (Sahli) (5.6 Gm.), reticulocytes 4.6, platelets 5 per hundred white blood cells in the stained film, and 80,000 per cubic millimeter by actual count. Following a small puncture wound in the ear, bleeding continued after fifteen minutes. A specimen of blood clotted in nine minutes, but there was failure of the clot to retract.

Course of Illness and Therapy.—The patient was given daily roentgen irradiation over the splenic area in doses of 200 roentgens until she had received a total of 1,400 roentgens. On the fourth day of treatment the platelets had risen to 135,000 per cubic millimeter and on the seventh day were approximately 300,000. Coincidentally, there was a cessation of spontaneous bleeding; the clotting time was reduced to five minutes and normal retraction occurred. The bleeding time was six minutes. In figure 4 are shown a summary of the treatment and a graphic presentation of the number of platelets for a period of three months after roentgen irradiation was first given to the patient.

SUMMARY AND CONCLUSIONS

If a careful history is taken to discover a familial hemorrhagic tendency, the dietary habits of the patient, the presence of recent infection or the use of marrow-depressing drugs, and if the blood is studied correctly in conjunction with determination of the permeability of the capillaries, a case of purpura can almost always be properly classified.

In planning satisfactory treatment, all these factors must be properly evaluated. Repeated roentgen irradiation over the spleen in suitable dosage is an excellent means of increasing the number of circulating blood platelets in patients with idiopathic thrombocytopenic purpura haemorrhagica.

ABSTRACT OF DISCUSSION

DR. E. B. REED, Lincoln, Neb.: I wish to ask the author how long his patients remained well after irradiation.

DR. STACY R. METTIER, San Francisco: The first patient was treated in April, two years ago. She had a recurrence four months later, was treated again and has remained well since. I have seen her at monthly intervals. Her platelets have remained within 300,000 per cubic millimeter and she has had no recurrence of the hemorrhagic phenomena. One other patient, following treatment, has remained well for about eighteen months, and another patient for about fifteen months. These are the patients I have had the opportunity of studying longest.

24. Bucky, G., and Guggenheimer, H.: Roentgen Stimulation of Bone Marrow, Klin. Wchnschr. **1**: 11 (Jan. 1) 1922.

25. Hippe, H., and Kochmann, R.: Die Behandlung der thrombopenischen Purpura in Kindesalter mit Röntgenbestrahlungen der Milz, Jahrb. f. Kinderh. **136**: 302, 1932.

26. Mettier, S. R.; Stone, R. S., and Purviance, Katherine: The Effect of Roentgen-Ray Irradiation on Platelet Production in Patients with Essential Thrombocytopenic Purpura Haemorrhagica, Am. J. M. Sc. **191**: 794 (June) 1936.

THE TREATMENT OF ENCAPSULATED BRAIN ABSCESS

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Although there has been advance in the treatment of brain abscess by modern methods, the mortality still remains strikingly higher than that reported by Macewen [1] in 1893. In recent years my associates and I have been using with slight modifications the method described by King [2] in 1924. This consists of direct transcortical exposure of the abscess, uncapping the presenting wall and packing of the cavity in one stage. The increased intracranial pressure then theoretically everts the abscess wall. Though we feel that this is the best method to date, we have had our share of failures, owing chiefly to technical difficulties arising in the treatment of deep-seated abscesses.

The first of these difficulties lies in the fact that though the overlying brain is removed in the exposure of the abscess capsule there is still considerable trauma to the adjacent brain. The latter is not removed and may predispose to purulent encephalitis. Secondly, when the capsule in a deep-seated abscess is opened either advertently or inadvertently, collapse of the capsule may occur with loculation and consequent reformation of the abscess. Especially is this true with thin-walled abscesses. Thirdly, even though the abscess is successfully drained the intracranial pressure may return so quickly to normal that the abscess capsule is not extruded, and healing results with extensive scar formation. A new method described by King [3] in which the gauze packing becomes adherent to the wall and aids in its eversion might tend to obviate this. In our experience the percentage of epilepsy following the drainage of brain abscesses has been exceedingly high and we believe it has usually been due to massive scar tissue.

A method which would bring the abscess to the surface where it could be easily drained or removed, thus minimizing the difficulties mentioned, was suggested by the following case:

CASE 1.—G. C., a 15 year old boy, entered the University Hospital June 21, 1933, with a history that he had always been well until December 1932, when he had an infection of the upper respiratory tract lasting about three days. This was followed by swelling of the right eye and right side of the face and neck. This was accompanied by headache, nausea and vomiting, and elevation of temperature. The headache had gradually increased up to the time of admission, and there had developed some photophobia and stiffness of the neck.

On examination the fundi showed bilateral papilledema of 2.5 diopters without hemorrhages or exudate. The visual fields were normal. There was slight rigidity of the neck, but Brudzinski's sign was negative. There were no cranial nerve palsies. The abdominal reflexes were present and all deep tendon reflexes were equal and active. There were no abnormal cerebellar signs. X-ray studies of the head revealed slight separation of the suture lines, convolutional atrophy and destruction of the dorsum sellae. There was no abnormal calcification. The paranasal sinuses were negative except for a slight loss of sharpness in the superior margin of the right frontal sinus. The white blood count was 15,000, the hemoglobin 85 per cent. The urine was normal and the blood Kahn reaction negative. A diagnosis was made of probable right frontal abscess. A ventricular air injection was performed to establish definitely the location of the lesion. Only a few cubic centimeters of air could be instilled. The left frontal horn was seen to be displaced to the left; the right frontal horn was not visualized.

The following day a trephine opening was made over the right frontal lobe. On exploration with a cannula no lesion was encountered. It was then felt that a right frontal tumor was present. Accordingly, a right sided frontoparietal osteoplastic flap was turned down. The dura was opened and no surface abnormality seen. A cannula was passed deep into the frontal lobe and an abscess cavity entered. As soon as the pus appeared the needle was withdrawn. Bone was removed from the bone flap for an area the size of a silver dollar (38 mm.) directly over the puncture wound. The dura was left open here and it was hoped that the subarachnoid space would become obliterated and the abscess become more superficial. The bone flap was replaced and the scalp was closed in the usual manner except for an area over the bony defect. An iodoform pack was placed through the scalp and bony defect directly on the cortex. The sutures were removed on the fourth day after operation, the wound remaining clean. On the ninth postoperative day the patient was returned to the operating room. The cortex was clean and bulged slightly. The abscess was tapped. It had become much more superficial. The edematous brain overlying the cortex was removed with the electric loop. The capsule was opened and a pack easily placed within. Because of the marked thickness of the wall, the fact that the abscess was so superficial and the subarachnoid space so well sealed off, it was decided to remove the entire capsule. This was easily accomplished with traction and wiping with cotton pledgets, but at the last moment a small hole was made in the ventricle. Though this was easily seen and a muscle graft was inserted, a cerebrospinal fluid leak developed in five days and the patient died of meningitis at the end of two weeks.

This case was unfortunate in its handling from start to finish. However it was demonstrated that an encapsulated abscess would rise toward the surface were a decompression made over it, in the presence of increased intracranial pressure.

CASE 2.—L. M., a youth, aged 17 years, was admitted to the University Hospital July 26, 1935, with a history that five weeks previously he had noted the onset of severe left frontal headache with swelling of the tissues about the left eye. A slight coryza persisted for several days, the patient having been sufficiently ill to remain at bed rest for six days. The headache had disappeared for five days following its onset but had recurred and persisted up to the date of admission.

The patient was well developed and was not acutely ill but was obviously suffering headache. The left palpebral fissure was smaller than the right. There was a bilateral papilledema of 2 diopters without hemorrhages. The visual fields were normal. There was a slight right sided facial palsy of central type. The neurologic examination was otherwise entirely negative. X-ray studies of the skull revealed clouding of the left frontal sinus with evidence of destruction along its superior margin. The white blood count was 11,300 per cubic millimeter; the hemoglobin was 86 per cent. A diagnosis was made of osteomyelitis of the left frontal bone with underlying brain abscess. In view of the patient's comparatively good condition it was felt that the infected bone should be first removed and the epidural space explored. Accordingly, a left Killian and left external ethmoidectomy was performed by Dr. J. H. Maxwell, August 6. The left frontal sinus was found to be filled with pus and purulent granulation tissue. There was an osteomyelitis of the anterior table of the frontal sinus with a very extensive dural exposure from necrosis of the inner table. The dura was covered with thick, purulent granulation tissue. A complete Killian operation was done. The floor of the frontal sinus was removed. A narrow supra-orbital bridge was left in place. The dura was definitely tenser than normal. The infection had extended to the right frontal sinus so that the entire partition between the two frontal sinuses was removed and part of the anterior table of the right frontal sinus. Following this, a complete exenteration of the ethmoid sinuses

From the Department of Surgery, University Hospital, clinic of Dr. Max M. Peet.
Read before the Section on Nervous and Mental Diseases at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Macewen, William: Pyogenic Infective Diseases of the Brain and Spinal Cord, New York, Macmillan Company, 1893.
2. King, J. E. J.: The Treatment of Brain Abscess by Unroofing and Temporary Herniation of Abscess Cavity with the Avoidance of Usual Drainage Methods, Surg., Gynec. & Obst. **39**: 554 (Nov.) 1924.
3. King, J. E. J.: Personal communication to the author, Nov. 22, 1935.

by the external route was performed. Convalescence was uneventful. The headache persisted, however, and the papilledema increased slightly.

September 4, under local anesthesia, a transverse incision was made about 2 inches above the left eyebrow. An opening was made in the left frontal bone about the size of a silver dollar. The dura was opened. The subarachnoid space was not sealed off. This was obliterated as well as possible by electrocoagulation. There was slight brain herniation. The abscess wall was felt with the exploring needle at about 2.5 cm. The abscess cavity was not entered. The needle was immediately removed and an iodoform pack was loosely placed over the brain substance. No rise in temperature followed this procedure.

September 7, under nitrous oxide anesthesia, the iodoform pack was removed. A moderate herniation of edematous brain was present. This was easily removed by suction. The firm

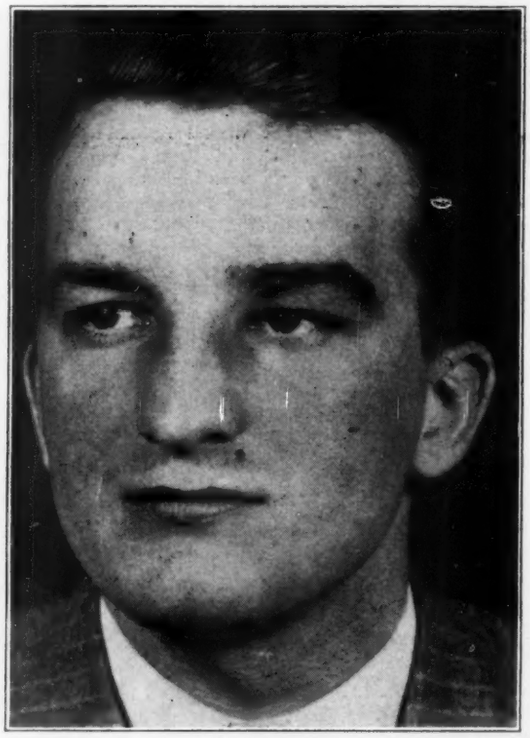

Fig. 1.—Patient 3, showing operative site six months after operation.

abscess capsule was seen to be flush with the skull defect. The abscess wall was opened with the electric loop. It was fully one-eighth inch (3 mm.) in thickness. By traction and careful dissection the entire abscess wall, which was the size of a hen's egg, was removed. The cavity remaining was seen to be entirely sealed off from the general subdural and subarachnoid spaces. A small gauze pack moistened with metaphen in oil was placed here. Three days after operation the cavity remaining after excision of the abscess had obliterated itself. The patient's condition improved rapidly. There was a small amount of purulent discharge. A slight herniation developed. In retrospect we realize that this should have been prevented by lumbar puncture. This would have hurried healing and prevented the cerebrospinal fluid leak which subsequently developed. This cerebrospinal fluid leak appeared exactly three weeks after operation. A lumbar puncture was performed and the needle left in place for three hours. Dehydration with sucrose and limitation of fluids was commenced. When the patient was dressed the following day it was found that the gauze which was covering the brain herniation had been actually drawn into the cranial cavity through the defect in the skull, because of its adherence to the retreating brain substance. It was extricated with some difficulty. Lumbar drainage was again performed the following day. There never again was any cerebrospinal fluid discharge. The dehydration was kept up for one week, when it was discontinued. Rapid epithelization now took place, and the patient was discharged October 14 with only a small area the size of a dime (18 mm.) which had not epithelized. Two weeks later the patient returned for check up with the wound perfectly healed. A letter was received from the patient April 10, 1936, stating that he was perfectly well and symptom free.

This case again shows that an encapsulated abscess can migrate toward the surface beneath a decompression, in the presence of increased intracranial pressure. A fairly deep abscess has here been brought to the surface, where it could have been easily and safely drained had we not chosen to remove it.

CASE 3.—W. L., a laborer, aged 20, entered the University Hospital Oct. 22, 1935, in a semicomatose condition. There had been a history of pain over the left frontal region since early July. The patient's physician stated that the left frontal and maxillary sinuses were cloudy on transillumination. There had been no nausea, vomiting or generalized headache, and there was no history of acute infection.

October 8, because of the persistent pain, an operation was performed elsewhere under general anesthesia in which "the anterior tip of the middle turbinate on the left side and a few anterior ethmoid cells were removed. No pus was seen." The patient's condition seemed to improve until October 21, when his headache again became very severe, and the night following he could not be aroused. He was accordingly transported to this hospital.

The patient was dehydrated, semistuporous, incontinent and hiccuping frequently. The fundi showed bilateral papilledema of 2 to 3 diopters with hemorrhages. There was slight stiffness of the neck, but Kernig's sign was negative. There was no facial paralysis. The right knee and achilles jerks were somewhat more active than the left. Babinski's sign was positive on the right. The white blood count was 26,000. The urine contained a small amount of albumin. The temperature was 100.8 F., the pulse was 72, and respirations were 16 and abnormally deep. Intravenous 50 per cent sucrose was given with some improvement in the patient's condition. The following day he was taken to the operating room. Because of his precarious condition it was felt that the abscess should be tapped immediately. Accordingly, a left sided trephine opening was made about 2 inches above the eyebrow. The abscess wall was encountered at about 2.5 cm. It was entered and thick, greenish pus later proved to contain Staphylococcus aureus was evacuated. Approximately an ounce (30 cc.) was removed. Purposely no attempt was made to evacuate the abscess. The bone defect was then enlarged to the size of a silver dollar (38 mm.) and the dura widely opened. The surface vessels were coagulated and the subarachnoid space sealed off. An iodoform pack was placed over the cortex. The following day the patient's condition was greatly improved. Five days later the patient was taken to the operating room and placed under nitrous oxide anesthesia. It was seen that there was a brain herniation of approximately 3 cm. The edematous brain was removed by suction and was no more than 1 cm. in thickness. The thick abscess capsule was then seen. It projected at least 2 cm. above the bone defect. The abscess capsule was opened. By means of traction and careful dissection with cotton pledgets the entire abscess wall was removed except for a narrow stalk about 3 mm. in diameter which ran down into the brain substance. The stalk was cauterized. A surprisingly small cavity remained. The subarachnoid and subdural spaces were apparently entirely sealed off. A small pack of gauze wet with metaphen in oil was placed within the cavity. Several stitches at the outer margins of the scalp incision were taken.

The temperature reached 104 rectally the day of operation but within two days was practically normal and remained so. The patient's general condition improved rapidly. Eight days later, under ether anesthesia, a left sided Killian operation was performed by Dr. A. C. Furstenberg. The anterior wall of the left frontal sinus was removed. The thickened, inflamed lining mucous membrane was immediately seen to be covering the dura. Dr. Furstenberg remarked that it was of unusual interest to observe that the inner wall of the frontal sinus had been destroyed to such an extent that there were not even sequestrums present and the dura and brain had pushed forward, completely filling the frontal sinus. The inner wall of

the frontal sinus on the right side was present, and the cavity was perfectly clean. A fairly complete exenteration of the ethmoids was done and the sphenoid sinus explored. The latter was found to be normal. The ethmoids were the seat of inflammatory and polypoid mucous membrane, but there was no pus present. The fronto-ethmoid cells were completely exenterated and free communication was established between the left frontal sinus and the nose. The left frontal sinus, however, was only a potential cavity because it was completely filled with brain covered by dura. The ethmoidal area and frontonasal duct were packed with petrolatum gauze and the incision was closed for primary union. The wound healed satisfactorily.

The brain abscess wound, in the meantime, was healing in exactly the same manner as was described in the previous case. A slight herniation developed. Again, in retrospect, we realize that this should have been prevented by lumbar puncture. Exactly eighteen days from the date of excision of the brain abscess, a cerebrospinal fluid leak developed from the center of the granulating tissue. Lumbar drainage was immediately performed. Intravenous 50 per cent sucrose was given, and dehydration commenced with complete limitation of fluid. The following day cerebrospinal fluid was again seen. Lumbar drainage was performed for four hours in the morning and two hours in the evening. The temperature rose to 101.6. Cerebrospinal fluid never appeared again. No further lumbar punctures were done. Three days after the last puncture, the patient having been kept on strict dehydration, a large cavity was seen beneath the bone defect. Fluids were immediately recommenced. Within a few days clean granulation tissue had filled the skull defect. Ultraviolet rays were now given locally to stimulate healing. The patient was discharged December 14 with the wound practically healed. Jan. 18, 1936, he returned because of an attack of generalized convulsions. Shortly afterward a soft tissue abscess was evacuated at the site of the previous sinus operation. The patient was seen April 18 (fig. 1) stating that there had been no further convulsions and that he was entirely symptom free. The neurologic examination was negative. Pulsation was present over the scar.

Again is seen how closely case 2 has been paralleled. The patient's precarious condition, however, made partial evacuation of the abscess necessary before the bony focus was excised.

CASE 4.—J. A., a youth, aged 20 years, entered the University Hospital Sept. 17, 1935, with a diagnosis of pansinusitis and osteomyelitis of the anterior wall of the left frontal sinus. Brain abscess was suspected at this time because of previous headache and vomiting. The fundus examination was negative, as was the neurologic study. The patient did not appear in any way acutely ill. A bilateral Killian operation was performed. There was osteomyelitis of the inner table of the left frontal sinus as well as of the left frontal supra-orbital ridge. The dura on exposure was found to be thickened, and brain abscess was suspected beneath. Following this operation the patient's symptoms cleared up rapidly, and though abscess was still suspected he was discharged to return should symptoms of a cerebral lesion reappear. The patient was again seen December 10. There was bilateral papilledema of 4 diopters with hemorrhages. The visual fields were normal, as was the remainder of the neurologic examination except for a slight bilateral sixth nerve palsy. The white blood count was 12,800. A left frontal abscess was suspected. December 14, through a trephine opening just back of the hair line in the left frontal area, the abscess wall was palpated at a depth of exactly 3.5 cm. from the brain surface. The decompression was enlarged to the size of a silver dollar (38 mm.). The surface vessels were coagulated and the arachnoid sealed to the cortex. Three days later there was brain herniation over the defect of about 2.5 cm. The edematous brain was removed by suction down through the skull defect. The abscess capsule was seen 0.5 cm. beneath the inner wall of the anterior margin of the defect. Two days later a small amount of edematous brain had risen above the defect. This was sucked away and it was now found that the firm capsule had risen 0.5 cm. above the outer surface of the skull. No rise in temperature and no symptoms followed either of these procedures. The following day the abscess ruptured spontaneously. The capsule, however, remained at the surface. The dome of the capsule was then excised and an iodoform pack placed within the cavity. The day after, cerebrospinal fluid was seen coming from the subarachnoid space at the edge of the wound. In spite of the presence of pus in the vicinity, lumbar drainage was performed and dehydration commenced. The wound was left exposed and was frequently irrigated with metaphen. There was no further escape of cerebrospinal fluid, and from then on convalescence was entirely uneventful. The patient was discharged five weeks later with the wound almost entirely healed. A letter dated April 8 stated that the patient was entirely well and symptom free.

At the time of excision of the dome of the capsule the dissection must have been carried too far laterally, thus opening the subarachnoid space. It was not realized until the following day, when the escape of cerebrospinal fluid was seen. It should easily have been avoided.

TECHNIC

Preliminary to the drainage of any brain abscess the original bony focus, should one be present, is obliterated, provided the patient's condition permits. This means mastoidectomy, exenteration of paranasal sinuses, or excision of other areas of osteomyelitis of the skull. Theoretically this should prevent reinfection after the abscess has been dealt with and at the same time excludes epidural abscess as a cause for the symptoms. From one to two weeks after this procedure, depending on the state of the wound and the condition of the patient, a trephine opening is made over the suspected area. (If possible, an abscess should be attacked where it is closest to the surface. McKenzie[4] has stressed that where the abscess is encountered obliquely to the exploring needle a new opening should be made over what is visualized as the most superficial part of the abscess.) The dura is opened and a dull exploring cannula is passed through the cortex in the direction of the abscess. When the rubbery feel of the wall is encountered the cannula is withdrawn without piercing the capsule. The bone opening is then enlarged to about the size of a silver dollar (38 mm.). The dura is further opened in a stellate manner. The brain then herniates slightly. The surface vessels are coagulated and the arachnoid sealed to the cortex at the margins of the wound. An iodoform pack is placed to further the formation of adhesions, thus completely sealing off the subdural and subarachnoid spaces at the margins of the defect. One is still working in a sterile field. This procedure is performed under local anesthesia, as there is no desire at this stage to heighten the already increased intracranial pressure.

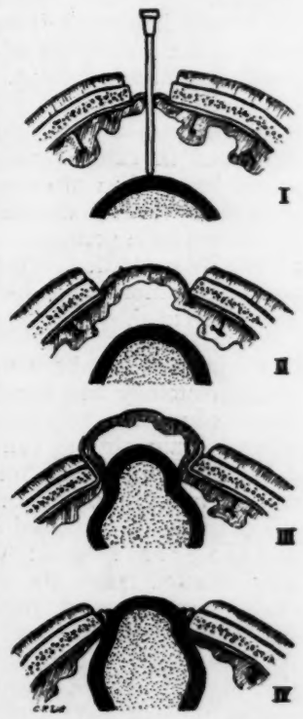

Fig. 2.—First stage: *I*, abscess wall palpated with cannula through trephine opening; *II*, opening in bone enlarged, dura opened, surface vessels and arachnoid coagulated. Second stage: *III*, four days later, showing migration of abscess and herniation of brain; *IV*, herniating brain removed by suction; abscess ready for drainage or excision.

4. McKenzie, K. G.: The Treatment of Abscess of the Brain, Arch. Surg. **18**: 1594 (April) 1929.

The next stage is performed from three to four days later. The abscess capsule, if smooth walled and not bound down, will have migrated to the surface, covered by edematous brain. The latter is now easily removed by suction. If the abscess has not risen sufficiently above the surface, one can wait several days more and again remove any edematous brain covering the capsule. I believe that if one waits sufficiently long the abscess may completely extrude itself. Case 3, in which the abscess had migrated so that its dome was at least 2 cm. above the skull defect, illustrates this principle. The abscess would undoubtedly have completely delivered itself had sufficient time been given. At the time that the abscess is drained or excised nitrous oxide is used, since it is well known to increase the intracranial pressure. I feel that this aids in removal of the capsule or extrusion of its contents. If one prefers drainage to complete excision of the abscess it is probably best accomplished by cutting off the dome and stitching the walls to the subcutaneous tissues, as described by Horrax.[5]

The one important factor in the postoperative treatment is the prevention of brain herniation by lumbar puncture and dehydration, when necessary. King [3] has stressed this point in a personal communication and I am entirely in accord. Had the slight herniation that developed in cases 2 and 3 been prevented, healing would have taken place quicker and the cerebrospinal fluid leak which undoubtedly came from the ventricle would not have occurred. The fact that the leaks were so readily controlled in both cases by lumbar puncture and dehydration is good evidence that they could have been prevented.

SUMMARY

No attempt has been made to discuss the etiology, symptomatology and actual drainage of brain abscess. A procedure is merely given by which a chronic encapsulated brain abscess can be more easily dealt with. I have shown in these four cases that a brain abscess can migrate to the surface beneath a decompression, in the presence of increased intracranial pressure. Adson and Craig [6] have stated: "Cerebral abscesses are invariably situated below the cortex. Occasionally a stalk can be seen to extend from the meninges to the abscess, but, more often than not, no trace of invasion can be demonstrated." From this statement one may deduce that in most cases of encapsulated abscess there is nothing to prevent their changing position under certain pressure conditions. Could all abscesses be drained at the surface under circumstances which would minimize the possibility of meningitis, the mortality would undoubtedly diminish.

ABSTRACT OF DISCUSSION

DR. R. GLEN SPURLING, Louisville, Ky.: Dr. Kahn has made a valuable contribution to the treatment of deep seated, thick walled cerebral abscesses. I feel strongly that his method does not apply to the treatment of subacute abscesses. In my experience, during the subacute stage, the repeated tapping method of Dandy is preferable to any other. He has demonstrated a simple, effective way of promoting migration of the abscess to the surface before any attempt is made to establish drainage. My attempts to draw manually the wall of the abscess to the surface, after the contents have been evacuated, have often been successful and at other times most unsuccessful. Too frequently the wall is not dense enough to withstand the tugging required to accomplish this end. In such circumstances a tube drain is resorted to and, as a consequence, most of them eventually refill, and the whole procedure has to be repeated. It has been my experience that, when the abscess wall can be stitched to the skin through an opening in the cerebral cortex, dura and bone sufficiently large to allow herniation of the capsule, the patient has an excellent chance to recover. Now that this method of handling the more deep seated ones has become available, the death rate from chronic cerebral abscesses should be still further reduced.

DR. JOSEPH E. J. KING, New York: Dr. Kahn's procedure is a contribution to the work on brain abscess. In 1924 when I described an operation for brain abscess it never occurred to me that a deep seated abscess could be herniated to the surface and treated in the manner suggested. I never proposed that the operation described by me could so be used. Now that Dr. Kahn has shown how to bring a certain number of abscesses to the surface, it makes me more hopeful in dealing with the deeper seated abscesses. It is remarkable how much interest has been shown in the subject of brain abscess during the last two decades. It is strange that there could have been such a lull after the splendid contribution by Sir William Macewen in 1893, and much that he taught seems to have been forgotten or overlooked until the last two decades. The mortality rate in cases of brain abscess will necessarily be rather high. Many rupture into the ventricle or into the meninges without having been previously recognized or localized. Some will do so after operation. Some very good series of recoveries have been reported, the largest being that of Adson and Craig. Grant, Coleman, Horrax, Cahill and others likewise have reported a number of recoveries. In Grant's rather large number of cases there were quite a few which did not even come to operation for one reason or another. The patients were too ill or were moribund. Therefore the mortality rate, taking all cases by and large, will necessarily be rather high. Adson and Craig's procedure is quite similar to the one described by me. Horrax and others have operated on abscesses when possible, with a rather wide open approach which allows of proper inspection of the cavity. Grant, Coleman and others continue to use a small drainage tube (catheter) through a small opening. Grant has devised a very ingenious instrument for introducing the catheter into the abscess. All have reported comparatively good results in operable cases. I have seen, excluding a number of traumatic brain fistulas, thirty-five cases of nonmetastatic abscesses and six cases metastatic in origin; so that there is no one operation for the treatment of brain abscesses, not only for the reason that they are not all alike but also because various types of operations have given fairly good results. There are a number of ways to enter this city, and one may be as good as another. I am grateful to Dr. Kahn for the information regarding deep abscesses. It will be of decided benefit. I am glad to know that he, Cairns and others have successfully used the procedure described by me. In my hands it has given fairly good results. I expect to continue its use.

DR. WALTER E. DANDY, Baltimore: I can't refrain from expressing very radical disagreement with this method of Dr. Kahn and Dr. King. To me a fungus, a wide open wound or a cerebrospinal fistula is a matter of horror. I feel strongly that surgeons do far too much in treating brain abscesses. There is one important rule in the treatment of any infection of the brain: to go slowly and do as little as possible; with abscesses that little is merely to relieve the intracranial pressure by tapping, not draining, the abscess. Nature will do the rest. Give nature a little time and a little well directed assistance with a single chronic brain abscess, and most of them will be cured without disfigurement, without fungus formation and without cerebrospinal leakage and the danger of meningitis. In my experience simple tapping has been far and away the best treatment in the handling of such abscesses. Unfortunately more abscesses of the brain are multiple than single, and then one has very different problems with which to contend. But a single abscess is really a very simple lesion to treat.

DR. TEMPLE FAY, Philadelphia: I believe that Dr. Kahn has really made a definite contribution to the treatment of brain abscess. Here are two illustrations from my experience: A boy, aged 16, was struck on the head by a bucket of coal falling 16 feet and sustained a compound fracture of the skull. The surgeon who attended the boy operated to remove the particles of bone, encountered active hemorrhage from the lateral sinus, packed the sinus, and eight days later attempted to remove the packing. Infection had occurred. Another hemorrhage fol-

5. Horrax, Gilbert: A Method for the Treatment of Certain Chronic, Encapsulated Brain Abscesses, S. Clin. North America **14**: 1179-1186 (Oct.) 1934.
6. Adson, A. W., and Craig, W. M.: The Surgical Management of Brain Abscess, Ann. Surg. **101**: 7 (Jan.) 1935.

lowed, and the sinus was packed again. Thirty days later the patient was sent to my clinic with infection around the wound, a large open area from the decompression, and fungating brain, with a piece of packing extending down into the right parietal lobe. Because of the active infection in the wound we had no alternative and didn't dare to operate. We allowed the brain to herniate. I thought the boy was going to die. He was hemiplegic and stuporous. Transfusions were given and five weeks passed. I simply cut off the herniated portions of the brain. The abscess, including the packing, eventually extruded itself. To my amazement the boy recovered and is now attending school. He has fair use of his left side. He had a spontaneous recovery, and the wound was eventually closed. The second case, in a child of 6 years, was one in which I suspected a subdural abscess. I found a large subdural, infected hematoma with pus. I was afraid to leave the bone flap in place for fear there would be osteomyelitis. I removed the flap and, in so doing, accomplished what Dr. Kahn has already pointed out, decompressed the abscess. The boy today is ready to leave the hospital, although the abscess cavity contained 90 cc. of pus. I was extremely interested in what Dr. Kahn said about giving the anesthesia to help express the abscess. In the original work of Ambroise Paré is a fine account of a series of brain abscesses well treated. Perhaps in those days they let them go until, as Dr. Dandy said, they had become very focal processes, and nature does a great deal for them. But Ambroise Paré's method was to open the skull by trepan and insert a lead tube into the cavity. He naively states that each day, on dressing the patient, he required that the patient hold his nose, take a deep breath and strain so as to push forth the sanguineous material. That is the first record I have seen that deliberate attempts to increase intracranal pressure help evacuate an abscess or move these abscesses toward the surface. Dr. Kahn is to be congratulated for his well founded observations and method of treatment.

DR. JAMES RUDOLPH JAEGER, Denver: The less a brain abscess is disturbed, the better off the patient will be, provided adequate drainage is instituted. As Dr. Kahn has pointed out, many of these abscesses are very deep, going right up to the ventricle, and there is a very thin barrier between the abscess and the ventricle itself. There is no question that many abscesses extend into the lateral ventricle and fill the whole ventricle and yet the patient may recover.

DR. PERCIVAL BAILEY, Chicago: I would like to express the same horror of herniation. There are areas in the brain where one would hesitate to provide such hernias and certainly where one would hesitate to decompress such an abscess because of the resulting neurologic defects. In those cases I would call attention to the method recently devised and proposed by Vincent and his associates in Paris. He taps these abscesses repeatedly, as Dr. Dandy proposed, and, after weeks and months have elapsed, he deliberately goes in and extirpates the abscess as he would a tumor. Last summer he showed me a series of fifteen or twenty surgical specimens which he had treated and removed in this way. I was impressed by his results and have since then been handling abscesses in that way myself, with one exception. This abscess occurred in a boy who had osteomyelitis of the skull. A large portion of the skull had been removed. An abscess afterward developed directly underneath this area. An opening was made into the abscess through this area from which the skull had been removed. A drain was put in; herniation occurred, and the abscess extruded itself through this opening and was completely taken off, without any difficulty at all, as Dr. Kahn has stated. But that wasn't the end of it, because once the abscess was out the brain also came out and kept coming until the ventricle ruptured, and the cerebrospinal fluid poured out through this opening. Since the herniation occurred through the speech area, the boy was hemiplegic and aphasic as well. I am sure that if this abscess had been treated by tapping, simple tapping, it could afterward have been extirpated, if necessary, if it did not heal. Dr. Dandy suggests that they usually do; that has not been my experience. But if it had not healed, it could afterward have been extirpated as Vincent suggests, with considerably less defect to the patient than occurred in handling it in this way. Why the brain kept on coming out in this case I think was the fact that the boy had had some chronic meningeal inflammation which had disturbed the circulation of the spinal fluid, so that the pressure in the ventricles continued to rise. Repeated lumbar punctures had no influence in preventing the herniation.

DR. EDGAR A. KAHN, Ann Arbor, Mich.: I would like to answer Dr. Bailey first. Once the abscess is out there is no need for herniation in any cases I have seen, unless there is an underlying abscess, and it is very possible that that was a metastatic case.

DR. BAILEY: The boy is still alive. He is still draining cerebrospinal fluid and is hemiplegic and aphasic.

DR. KAHN: There is no reason why that herniation should continue. In these three cases, as soon as the abscess was extruded there was a cavity, but a surprisingly small cavity that filled in two or three days. The whole thing could have been easily controlled with lumbar punctures.

DR. BAILEY: We made encephalograms and ventriculograms, and we didn't find any evidence of another abscess. That doesn't prove it isn't there.

DR. KAHN: In answer to Dr. Dandy, I first make a trephine opening. I do not make a big opening. I tap first through this small trephine opening. If I find the abscess, I make a decompression no larger than a silver dollar (38 mm.). That does not give a big herniation. The abscess does come up. As for repeated tappings curing these heavy, encapsulated abscesses with a virulent infection, I know of nobody else who has had the results that Dr. Dandy has had.

DR. FRANCIS C. GRANT, Philadelphia: May I interject at this moment that I have had five out of seven patients with encapsulated abscess recover from simple tapping.

DR. KAHN: I didn't realize that. But in the hands of other people I don't know that such results have occurred. This isn't a complicated method at all. It is used in the deep seated abscesses. I think one of the most technically difficult things is to get in and drain an abscess that lies from 2 to 3 cm. down.

INSULIN SHOCK THERAPY IN SCHIZOPHRENIA

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Recently Sakel [1] and Dussik and Sakel [2] introduced insulin as a therapeutic agent in the shock treatment of schizophrenia. Their reported good results have been confirmed by Müller,[3] Wortis [4] and Wilson.[5] Glueck [6] has discussed the methods and importance of this new treatment as carried out at Münsingen, Switzerland. Gross [7] and Georgi [8] have studied the humoral changes during insulin shock.

A few months ago I began to use this treatment, employing the technic described by Dussik and Sakel.[2] Although I have observed only three cases, it seems worth while to relate my experiences because (*a*) this form of therapy is new and every contribution may be of some importance; (*b*) I have treated old rather than new cases, since it is difficult to evaluate and therefore to make allowances for the tendency to remission early in the course of the disease, and (*c*) I may emphasize the difficulties and hazards involved in the application of this treatment.

REPORT OF CASES

CASE 1.—H. B., a woman, aged 27, had, eight years before, when she was a school teacher, developed a depression with

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From the Michell Sanatorium.
The author is indebted to Dr. Heilbrunn, staff member of the State Hospital at Münsingen, Switzerland, for his suggestions regarding this form of therapy.

1. Sakel, Manfred: Neue Behandlung der Schizophrenie, Vienna, M. Perles, 1935.
2. Dussik, K. T., and Sakel, Manfred: Ztschr. f. d. ges. Neurol. u. Psychiat. **155**: 351-415, 1936.
3. Müller, M.: Schweiz. med. Wchnschr **39**: 929 (Sept. 26) 1936.
4. Wortis, Joseph: J. Nerv. & Ment. Dis. **84**: 497 (Nov.) 1936.
5. Wilson, Isabel G. H.: A Study of Hypoglycaemic Shock Treatment in Schizophrenia, Board of Control H. H. Stationery Office, 1936, cited in Hypoglycemic Shock Treatment of Schizophrenia, editorial, J. A. M. A. **107**: 1720 (Nov. 21) 1936.
6. Glueck, Bernard: The Hypoglycemic State in the Treatment of Schizophrenia, J. A. M. A. **107**: 1029 (Sept. 26) 1936.
7. Gross, M.: Schweiz. med. Wchnschr. **29**: 689 (July 18) 1936.
8. Georgi, F.: Schweiz. med. Wchnschr. **39**: 935 (Sept. 26) 1936.

paranoid ideas. She left school, spent several months in a mental hospital and after two years made a spontaneous but, subjectively, only a partial recovery, since she continued to have strong feelings of guilt and mild depressions, usually during her menses. Her father and a maternal aunt have been treated in mental hospitals. She married five years after the onset of her illness and gave birth to a baby girl one year later. There is no history of marital unhappiness. The patient entered the sanatorium four months ago very much depressed. She complained of vague uncomfortable sensations and repeated constantly "I am losing my mind." Intervals of great excitement to the point of screaming and violence alternated with periods of deep depression, during which the patient refused to speak to or to look at any one. She exhibited several stereotyped gestures and grimaces and on a few occasions had visual hallucinations. At times she broke into foolish, causeless laughter. She refused to see any members of her family. Physical examination was essentially negative. There was a mild secondary anemia.

Insulin was given intramuscularly in an initial dose of 15 units. This was increased by from 5 to 10 units daily until a maximum of 95 units was reached. As the dosage mounted the patient occasionally exhibited short periods of somnolence, alternating with periods of excitement; accompanying the latter there were occasionally slightly increased perspiration and mild, generalized twitchings. The magnitude of the reaction was not directly proportional to the amount of insulin given, nor was it inversely proportional to the height of the blood sugar, which never fell below 40. The order in which the various signs of insulin shock might appear was absolutely unpredictable and completely irregular. At 95 units, after a period of intense excitement, a severe circulatory collapse suddenly developed without unconsciousness, in spite of the fact that the patient had been digitalized. She was given sugared tea by mouth, epinephrine and caffeine intramuscularly and dextrose intravenously. Her condition was critical for two hours; that evening her temperature rose to 102.2 F. During the following week only from 50 to 65 units was given, during which time the patient had periods of excitement and/or somnolence, although there were days on which the insulin had no apparent effect. The dose was then slowly increased, and at 75 units, after a period of light somnolence and very mild twitching, strong tonic and clonic convulsions suddenly developed and she went into a state of circulatory collapse, for which epinephrine, alpha-lobeline and intravenous dextrose were required. Thereafter, doses of from 50 to 60 units occasionally brought about similar but milder attacks. Great care was taken to give sugar early. There was never any profuse perspiration or salivation.

Throughout the course of the treatment and to a degree apparently unrelated to the severity of the reaction, it was possible to establish good contact with the patient for several hours at a time. As the end of the treatment was approached (after twenty-four insulin shocks) the patient showed a marked improvement; she happily awaited her husband's visits, chatted freely during his stay and showed great interest in her child. At present she is progressively becoming better adjusted to her environment. Her stereotyped mannerisms are less and less noticeable. She is eager and happy to see her family. Her emotions are labile and she laughs somewhat too freely. She exhibits a deep interest in the course of fellow patients to whom she had previously paid no attention. She is now ready to go home for convalescent care.

In contrast to this patient, who exhibited almost none of the typical reactions so carefully described by Dussik and Sakel, are patients 2 and 3, who are still being treated:

CASE 2.—P. Z., a man, aged 25, first exhibited some depressive signs about one year before admission. Marked paranoid symptoms developed two months before. On admission he was excited and violent and had all types of hallucinations. He showed marked improvement after a few weeks of physical therapy but suddenly suffered a complete relapse, during which even graver delusions developed than he had presented on entrance. Treatment was started with 20 units of insulin, and by the time 50 units had been reached the patient went through all the typical "phases" described by Sakel, the period of "activated psychosis" always being preceded by one of profuse perspiration and a subjective feeling of great weakness. Although treatment of the patient is still in progress, it is evident that on awakening from the induced coma he is becoming increasingly more cooperative, and it is possible to establish good contact for progressively longer periods.

CASE 3.—M. X., a woman, aged 31, started in her psychosis six months ago with ideas that she was infected with syphilis and tuberculosis. At first the diagnosis of compulsion neurosis was made, but later it became evident that the patient was a paranoid schizophrenic. She felt that a certain man had hypnotized and infected her, and so on. The patient suffered greatly with her fixed hypochondriacal ideas, and it was impossible to convince her of their imaginary character. She has received ten treatments beginning with 15 units and increasing to 60 units; she has reacted with typical "wet" shocks. There have been marked cardiac irregularities in spite of digitalization. The patient's compulsive ideas tend to grow weaker during the hypoglycemic state and for some hours afterward, although it is obviously too early to draw any definite conclusions.

A complete report, including a discussion of the psychologic phenomena, will be made after a suitable period.

CONCLUSIONS

1. These patients differ not only from each other in the type of their reactions but also in the magnitude and type of their response to any given amount of insulin. The application of this treatment imperatively requires the constant presence of the physician and of efficient nurses, because of the hazards involved.

2. From my limited experience, insulin shock therapy may show many serious deviations from the typical reactions. In patient 1 there were no typical "wet shocks," and she never fell into deep somnolence or coma. At the point at which increasing somnolence or coma might be expected, this patient went into either severe epileptiform convulsions or a circulatory collapse so profound that immediate intervention was necessary. Blood sugar determinations proved to be of little value in predicting the course of the reaction; much more important was careful observation of the pulse and blood pressure.

3. In the cases reported I observed what Dussik and Sakel term "activated psychosis"; this manifests itself by such symptoms as increased restlessness, a tendency to violence and an exaggeration of all the presenting symptoms. The patients then went into actual shock; as they recovered from this the sensorium seemed to clear. During and after the treatment it seemed to be possible to influence the patients in a psychotherapeutic way. In my opinion too the type of reaction in patients 2 and 3 ("wet shock") is not as dangerous as that described in the first case.

4. Patient 1 first developed psychotic symptoms eight years ago; this initial attack lasted two years. It was possible to bring this patient, refractory to all other forms of therapy, out of her psychosis in seven weeks and send her home. This period is to be compared to her first illness of two years' duration. I believe that the second patient is making rapid progress.

5. Finally, it is suggested that to decide definitely on the value of this form of therapy it might be well to establish some central office where all the data could be conveniently assembled and compared. Since most institutions are prepared to carry out only a few of these time and energy consuming treatments at any one time and since there is such a wide diversity of opinion as to the point at which a patient may be considered to have gained a "remission," such uniform statistics would be of incomparable value.

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THE PHYSICIAN AND THE TRAFFIC PROBLEM

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The recent literature on surgery has been full of references to the various problems confronting surgeons due to traffic accidents. New types of fractures have appeared and new technics have been devised to handle situations caused by the increased use of the automobile. In spite of the fact that the physician and his allied specialist the psychiatrist should be deeply interested in this subject, it seems that their eyes have scarcely been turned upon it. The manufacturers themselves have recognized the fact that the human element is an extremely important one in causing accidents, and law enforcement officers, judges and traffic administrators, particularly some of those at Harvard University, have emphasized the point that the physical and mental condition of the driver should be studied and that the problem created by physical and mental abnormalities in the driver is deserving of much more attention. Whenever there is a grave increase in the number of accidents in any community, a cry is raised by the newspapers and others for more physical and mental examinations, and in many states some routine physical examination, at least to the extent of rough tests of vision and a medical questionnaire, has been invoked and has been found to be of some use in culling out dangerous drivers. In other states where no formal examination is demanded, simple reading tests have been devised so that the optical capacity of the candidate for a license can be simply tested by a police officer or other untrained person.

Why the physicians have permitted this testing activity to pass beyond their control, as it seems to have done, is a question difficult to answer. Certainly physical examinations, particularly those of the eye (a most difficult organ to test) are in the rightful sphere of the physician and many of the criticisms of the examination for the operator's license as it is now administered could be done away with were these examinations carried out by persons interested in therapy rather than in mere elimination. Most of the resistance to the proper licensing of drivers is based on the fact that whenever possible a car owner or a member of his family who has reached a sufficient age and is grossly physically capable of driving should have the right to drive. Any infringement on this right is considered an infringement on liberty as the American people see it. Naturally, in such criticism the physician should be interested and is very likely to concur. But if a man is found with defective eyesight or defective physical make-up so that he would not be a safe risk on the road, it would be better for that individual to be studied with the view of correcting his difficulties, so he might be remade into a safe driver. Then in such a situation there would be no infringement on his right to operate a motor car.

The chief reason for criticism of the tests proposed in some states and now given to drivers in others, which should be of interest to physicians, is the fact that these tests in themselves do not separate the good from the bad driver. Many of the driving difficulties are due to emotional handicaps or arise from some temporary physical condition that is correctable or that might not occur again in the same individual during the rest of his life. Under these conditions the mere physical examination, a mere check-up of the eyesight, or a brief psychologic test, such as the Binet or some simpler test, would fail to reveal why the man under consideration had his accident or why he is a chronic law violator. Until physicians themselves give these examinations, compile data and show just where the line must be drawn between adequate and inadequate physical capacities, licensing by means of physical and mental tests will be more or less of a farce. For instance, I know of one man who has two artificial arms which are so constructed that he is able to steer and control an automobile. This man has now been driving for upward of twenty years and because of the care which he uses and the type of highways where he drives he has never been in any trouble with the law or had an accident. A mere physical handicap is no contraindication to driving, and it requires the decision of an experienced and highly trained individual to make a determination.

The features which the physician must consider when mapping out plans for making examinations for driver's license, or examining offenders or persons involved in accidents, from the physical and mental standpoint, are threefold:

THE GENERAL PHYSICAL CONDITION

First is the general physical condition, which is not extremely important, although at the Recorder's Court Clinic in Detroit there are on record several cases in which a known cardiac patient has suffered a collapse and has run into a safety zone, thus injuring other riders in the car with him, and also cases of persons suffering with debilitating diseases, such as tuberculosis, who when they have driven for long periods of time without a rest have gone into a serious fatigue condition, which impaired their alertness and resulted in an accident. In several recent addresses made to law enforcement officers, I have emphasized to them the fact that a physician's certificate as to the organic soundness of the candidate for a driver's license can easily be requested by licensing officials even though the law does not demand it. Most persons are certain that they have no physical handicap which would disqualify them and are only too anxious to secure evidence that they are well able, at least from the physical point of view, to drive a motor car. The matter of expense is not great, for most family physicians will grant this service for a minimum fee, and in many communities where enough cases can be referred, private physicians have signified their willingness to make special terms for such a service.

It might also be pointed out that such a physical examination would serve as the general health check-up which we as physicians are so anxious to have our patients submit to at reasonable intervals. In the case of the family physician it is an additional service he may render to families which require his services at quite infrequent intervals and which might lose touch with him.

There are one or two special features that should be noted. One, particularly, is the presence of a convulsive state. Most idiopathic epileptic patients are known to their local physicians, particularly to their family doctors, for usually they are using phenobarbital or some other sedative drug to control the rather

Studies from the Psychopathic Clinic of the Recorder's Court, Detroit, Michigan, Traffic Unit. Series T-1.

unpleasant episodes that they have. The known patient with serious epilepsy should unquestionably be curtailed in his driving capacity. Those whose convulsions can be controlled must realize that they must continue their treatment in a very serious manner if they are to use a motor car, for the motor car is a dangerous apparatus to handle if the driver is apt to become unconscious at intervals. Cases of petit mal frequently pass through a physician's hands without being recognized because no complaint is made by the patient. A check should carefully be made to see whether any of the symptoms of the minor attacks are present. The Psychopathic Clinic of the Recorder's Court has had two cases out of the last hundred in which petit mal was detected even though the individual himself did not know he had this condition.

The neurologic examination must by no means be neglected. The following is a case illustrating its importance:

A youth, aged 19 years, of athletic build, 5 feet 5 inches (165 cm.) in height and weighing 138 pounds (63 Kg.), was physically normal. His chest was symmetrical, his heart normal and his blood pressure slighly low. The neurologic examination revealed that while the cranial nerves were normal there was a slight swaying on the Romberg test, and marked tremors of the facial muscles, tongue and extended hands. The boy was ataxic and clumsy, with poor coordination. The heel to heel test was not as seriously atypical as the finger to nose test. A report was made to the judge that the boy's coordination was so poor that he would be unable to manipulate a car properly, and his license was revoked.

In another case, however, in which the coordination was less seriously impaired, the man was given some of Franz's rehabilitation exercises with the result that there was sufficient improvement so that there was no need to curtail his driving activity.

THE EYE EXAMINATION

The second type of examination is the eye examination. For all intents and purposes, the family physician who has some inexpensive equipment should be able to aid immensely in detecting gross eye defects that will obviously impair driving capacity. The proper use of the Snellen eye chart, the Ishahora color vision test, one of the conventional astigmatic charts, and the ophthalmoscope will usually suggest the presence of impaired vision. While it is quite true that some visual impairments, which might interfere with a person's driving capacity, do not always appear when the patient is given these simple tests, nevertheless cases of muscular imbalance, impaired physiologic function and deviated stereoscopic vision usually make themselves manifest on careful tests of visual acuity.

The physician who is really interested in this work might add to these tests of visual acuity the use of a protractor held horizontally before the eye around which a pencil is passed, thereby testing the breadth of the visual field.

In the experience of persons in giving careful tests to drivers, the number of cases of limited visual fields or barrel vision is very small, and these cases are usually accompanied by other symptoms of organic or functional nervous diseases. I would advocate the use, in the examination of accident-prone drivers, of local ophthalmologists to a greater extent than has been done.

There is no reason why the ophthalmologist in private practice cannot devise a simple way of detecting most of the deviations in vision or optical functions that would interfere with driving. It is true that in a clinic directly responsible to court more involved tests can be given which pertain less to disease than to psychologic function, but even here the use of a Keystone stereoscope, the campimeter and the slit lamp should be entirely adequate to enable traffic law enforcement officers to become aware of the need to call in the ophthalmologic consultant for licensing tests and for expert advice to the courts. In many cases treatment is definitely indicated. A case in point is the following:

A Negro, aged 26, married, Georgia born, was arrested for using and displaying another man's license, and it was the judge's intention to give him a slight sentence and permit him to go on his way. However, it occurred to the judge that it might be an intelligent thing to have the man examined, and he was referred for such examination, which revealed that physically he was in generally good condition except for extremely bad teeth, but the examination of the eyes revealed an extensive pannus over the right eye. The vision was markedly impaired.

This man would have continued to drive a car and on examining his record we found that he had been in much trouble before. It was easy to point out that, for no other reason than the eye condition, his driving activities should be sharply curtailed until he had proper treatment from an eye specialist.

MENTAL DEVIATIONS

The third place where the physician can be of aid is in detecting mental deviations. While specialized experience in examining the attitude and psychiatric capacity of the driver is as necessary here as it is in treating mental patients, the family physician's knowledge of the individual's scholastic ability and his home conditions should be of extreme value in advising about successful driving. While at the present time our knowledge of the mental factors behind bad driving is extremely limited so that it would be unwise for the physician to take upon himself too much in the way of advising along these lines, it cannot be gainsaid that the family physician who knows that the individual has done very poorly in school, that he has been considered for commitment to an institution for the feebleminded or the insane, or who knows that the patient's attitude is extremely antisocial and, perhaps, that he has been a problem in the family for some time, can advise such an individual not to apply for a license and, in addition, keep him under observation so that he will not cause injury and death because of his violation of the physician's instructions.

The examination of the mental make-up is distinctly a sphere in which the intelligent psychiatrist should find his services required. The understanding of the make-up and the attitude of the accident-prone driver or the violation-prone driver is not a simple procedure and too little research has been done along these lines; but, if psychiatrists will examine the work that has been done already and will show an interest in research along these lines, their services will undoubtedly be required in the capacity of advisers to licensing agencies. Certainly the psychiatrist and the physician are in an excellent position to devise treatment and means to put partially incapacitated drivers on the highway and to prevent those who are too sick mentally or physically from driving until such time as they are cured or their condition is substantially under control.

A neurosurgeon in private practice came to me a short time ago very much up in arms because he found that a patient of his, who had just been operated on for brain tumor and who had had a substantial part of

the cortex removed, was still driving a car. He wondered how this situation could be controlled and he was advised to tell the patient that he would get in touch with the police if he continued to drive. The patient had not realized how serious his offense was until it was brought to his attention by his physician, and it is my understanding that the patient immediately passed over the handling of his car to his wife and withdrew from active participation in it.

CONCLUSION

The public health field and the medical field of traffic accident prevention, through the intelligent use of medical diagnostic and treatment facilities in general, is relatively unexplored but already presents itself as a legitimate and sensible field for medical interest.

330 Recorder's Court.

A PHARMACOLOGIC STUDY OF THE TOXEMIA THEORY OF SURGICAL SHOCK

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AND
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We[1] have elsewhere reported evidence indicating that, in the dog at least, the vasomotor symptoms and death occurring in anaphylactic shock are brought about by the sudden discharge into the circulating blood of a vasodepressor, smooth muscle stimulating substance which is apparently histamine. We have been able to detect this substance in the blood and thoracic duct lymph for brief periods of time after the assaulting or shocking dose of serum and have been able to correlate its appearance with the varying grades of severity of the shock in such a way as to indicate that it has a causal relationship to the shock symptoms.

Since the vasomotor phenomena of surgical shock have likewise been attributed to the absorption from the traumatized area of a vasodepressor substance such as histamine, the question arose as to whether a similar investigation would yield positive or negative evidence for such a toxemia theory. We are not here concerned with reviewing the extensive literature on the toxemia theory of surgical shock. Suffice it to say that both the proponents and the opponents of this theory have been chiefly concerned with detailed comparisons between the phenomena of surgical shock and those of a toxemia shock such as produced by histamine, with circumstantial evidence bearing on the question of a toxemia pathogenesis of surgical shock or with evidences that other than toxemia mechanisms are or are not adequate explanations of the shock phenomena. So far as we are aware, the only report in the literature concerned with a somewhat direct search for the hypothetical toxin is the one by Phemister,[2] in which negative results were obtained when blood from the traumatized leg of one dog was collected in a viviperfusion flask and introduced into the circulation of a second animal without vasodilator effects.

METHODS

Dogs were used. They were anesthetized with ether and sodium barbital. Blood pressure records were made from the carotid, and the thoracic duct was cannulated for collection of lymph. Surgical shock was produced by sustained trauma with a padded hammer to one or both hind legs, by traumatizing the extruded intestine, or by a combination of these procedures. During the course of the ensuing shock, as gaged by the blood pressure record, samples of blood and of thoracic duct lymph were collected. These were kept from clotting by means of heparin in saline solution (freshly prepared) and were examined for the presence of physiologically active substances by testing on the isolated intestinal strip of the guinea-pig in the usual way, or by intravenous injection into an etherized, atropinized cat and noting the effect on the blood pressure. The bloods were centrifugated prior to testing and the respective plasma samples employed, while the lymph specimens were employed directly. Either of these test methods will readily detect histamine if it is present in the lymph or plasma in concentrations around 1 : 250,000.

RESULTS

Nine experiments have been done and the corresponding blood and lymph specimens tested as indicated. In no instance was there any indication of a physiologically active substance being present. These negative results, in addition to indicating the absence of a physiologically active substance such as histamine in the shock specimens of blood and lymph, also show that the methods we have employed are free from certain complicating factors. For example, Ponder[3] and others have shown that substances having vascular effects are apt to appear in serums separating from specimens of clotted blood, and Phemister and Handy[4] have shown that blood which has been "traumatized" by shaking or hemolysis and the like also acquires vasodilator and constrictor properties.

When these negative results in the case of surgical shock are contrasted with our positive results in anaphylactic shock, it is at once apparent that there is a distinct difference between the course of events in the two instances. In a typical anaphylactic shock there is an abrupt precipitous fall of blood pressure to shock levels from which the animal may or may not gradually recover. In surgical shock, however, there is a slow, gradual, progressive fall of blood pressure to shock levels from which, as a rule, there is no spontaneous recovery. Depending on the technic used for producing shock, this may take up to an hour or more. Anaphylactic shock, so far as the vascular effects are concerned, can be duplicated by the rapid intravenous injection of a large dose of histamine. It is perhaps not surprising, therefore, that an active agent can be found in the one case and not in the other. Various workers[5]

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Read before the Section on Pharmacology and Therapeutics at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Dragstedt, C. A., and Gebauer-Fuelnegg, Erich: Studies in Anaphylaxis: I. The Appearance of a Physiologically Active Substance During Anaphylactic Shock, Am. J. Physiol. **102**: 512 (Nov.) 1932. Gebauer-Fuelnegg, Erich, and Dragstedt, C. A.: Studies in Anaphylaxis: II. The Nature of a Physiologically Active Substance Appearing During Anaphylactic Shock, ibid. **102**: 520 (Nov.) 1932. Dragstedt, C. A., and Mead, F. B.: Further Observations on the Nature of the Active Substance ("Anaphylatoxin") in Canine Anaphylactic Shock, J. Immunol. **30**: 319 (April) 1936.

2. Phemister, D. B.: The Vascular Properties of Traumatized and Laked Bloods and of Blood from Traumatized Limbs, Ann. Surg. **87**: 806 (June) 1928.

3. Ponder, Eric: The Effect of the Injection of Serum on the Heart and Vessels of the Cat, Quart. J. Exper. Physiol. **18**: 133, 1928.

4. Phemister, D. B., and Handy, J.: Vascular Properties of Traumatized and Laked Bloods, J. Physiol. **64**: 155 (Nov.) 1927.

5. Best, C. H., and McHenry, E. W.: The Inactivation of Histamine, J. Physiol. **70**: 349 (Dec.) 1930.

have noted the inactivation of histamine in intact animals, organ perfusions and the like. We have recently confirmed and extended these observations with respect to the dog and have shown (by the testing methods previously mentioned) that intravenously injected histamine can be detected for only a limited period of time in the blood and lymph.[6] The question therefore arises as to whether surgical shock might not be analogous to the slow, sustained administration of histamine in concentrations and amounts that might ultimately produce a shock level of blood pressure, without attaining detectable levels of concentration in the blood or lymph. The problem thus became one of imitating experimental surgical shock by means of the administration of histamine and determining whether or not histamine activity could be detected in the blood or lymph under these conditions.

We did a great many experiments in which we injected histamine intravenously over periods of time with a modified Woodyatt pump, using varying concentrations of solution. In none were we successful in closely duplicating a corresponding surgical shock experiment. When reasonably strong concentrations were used, the blood pressure would fall rather promptly to a shock level. When weaker concentrations were used, the blood pressure would fall promptly for 10, 20, 30 mm. of mercury or more and then remain at this lowered plateau for rather long periods. There was not the slowly progressive fall characteristic of surgical shock. It is very probable that a suitably adjusted intravenous technic would succeed in duplicating this, but since another method was successful we discontinued our efforts in this direction.

As being more analogous to the theoretical assumption of an absorption of a toxin from a traumatized limb, we then tried subcutaneous and intramuscular injections of histamine into a hind leg. By this technic it is possible to duplicate almost exactly the blood pressure record of a dog during experimental surgical shock. In order to make the duplication as close as possible, a histamine experiment was run simultaneously with a surgical shock experiment. Blood samples could then be taken at corresponding phases of the two types of shock and tested simultaneously. Four such double or twin experiments have been conducted. In each instance the blood samples from the surgical shock animals have been negative throughout, while in each instance of the histamine shock experiments the blood samples taken during the development of the shock have been positive.

These results indicate, it seems to us, that, if surgical shock was the result of a toxemia secondary to the absorption from the traumatized area of a vasodepressor substance such as histamine, it should be possible at some stage of the process to detect the toxin in the blood plasma by the methods employed. Our results, however, have been consistently negative.

CONCLUSIONS

1. We failed to find any vasodepressor "toxin" in the blood and lymph of dogs during experimental surgical shock.

2. Experiments indicate that if the vasodepression of surgical shock was due to a toxemia such as that of histamine, the methods employed would have been adequate to detect it.

303 East Chicago Avenue.

6. Dragstedt, C. A., and Mead, F. B.: Inactivation of Histamine in Vivo, Proc. Soc. Exper. Biol. & Med. **32**: 1435 (June) 1935.

ABSTRACT OF DISCUSSION

DR. CHAUNCEY D. LEAKE, San Francisco: May the disappearance of the vasodepressor substance from the blood or from the plasma on standing be taken in any way as evidence of an enzymatic hydrolysis or destruction of the agent?

DR. CARL A. DRAGSTEDT, Chicago: With regard to that question, the rapid disappearance of histamine from the blood is from the circulating blood. If one draws a specimen and keeps it in the icebox or at room temperature, the histamine activity of that blood will last for hours although it will be measurably deteriorated within a day or so, but it is an entirely different affair from that which occurs while the blood is circulating.

DR. LEAKE: That argues more for an absorption of the material while circulation is occurring.

DR. DRAGSTEDT: Undoubtedly there is a process of inactivation, possibly by histaminase enzymes and possibly by absorption.

THE DIAGNOSIS AND CLASSIFICATION OF MENSTRUAL DISORDERS

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AND
EUGENE T. ELLISON, M.D.
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The confusion that surrounds the subject of menstrual disorders is largely due to the fact that there has never been any adequate correlation of the symptoms, the endometrium and the underlying glandular disturbance. It is our purpose in this paper to attempt such a correlation. While dysmenorrhea has many points in common with the disorders of interval and flow, it has certain characteristics which set it apart from them, and we reserve it for a separate and later discussion. This paper is limited to the disorders of flow and interval.

In 1929 we began a series of studies on glandular cystic hyperplasia of the endometrium, and, as the results of these studies have been largely responsible for the opinions enumerated in this paper, it seems well to begin with a brief review of them. In our first experiments [1] an analysis was made of the histologic changes produced in the endometrium by the action of estrogen and progestin. The normal human endometrium and the abnormal human hyperplastic endometrium were considered in the light of these studies, and it was concluded that the characteristic picture of glandular cystic hyperplasia of the endometrium was the result of a prolonged, continuous action of estrogen. This was an experimental confirmation of Schröder's concept [2] of the condition. The histologic picture of glandular cystic hyperplasia was next experimentally reproduced in the castrate animal by the prolonged and continuous administration of estrogen (fig. 1). The histologic changes were wholly comparable to changes found in the human being [3] (fig. 2). On account of the importance of this concept of the disease, others have seen fit to repeat and have confirmed these experi-

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Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Burch, J. C.; Williams, W. L., and Cunningham, R. S.: The Etiology of Endometrial Hyperplasia, Surg., Gynec. & Obst. **53**: 338 (Sept.) 1931.

2. Schröder, R.: Beiträge zur normalen und pathologischen Anatomie des Endometriums, Arch. f. Gynäk. **98**: 81, 1912.

3. Wolfe, J. M.; Campbell, M., and Burch, J. C.: Production of Experimental Endometrial Hyperplasia, Proc. Soc. Exper. Biol. & Med. **29**: 1263 (June) 1932.

ments. Among them are Parkes,[4] Tietze,[5] Kaufmann [6] and Zuckerman and Morse.[7]

Since glandular cystic hyperplasia of the endometrium is the result of the prolonged continuous secretion of estrogen, it cannot occur in patients whose ovaries contain active corpora lutea. In other words, in these cases the corpus luteum has failed, and estrogen alone continues to exert its influence on the endometrium. Such an ovarian state is clearly the result of a partial failure of ovarian function, and it seemed wise to try to produce such a condition of partial ovarian failure in our animals. We therefore partially castrated a series of animals and observed the sexual cycle [8] (fig. 3). In one group there was but little or no disturbance in the duration of the cycle and the extent of the estrous periods. In another group there was an irregularity of the interval and a prolongation of the estrous periods. In the remainder there was a greatly prolonged interval or an entire absence of the cycle. In the first group of animals the endometrium showed slight deviations from the normal; in the second

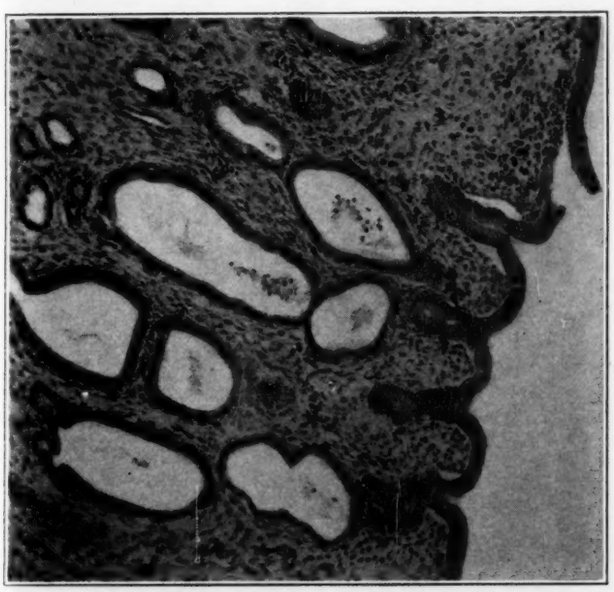

Fig. 1.—Endometrium of guinea-pig showing glandular cystic hyperplasia produced by long continued injection of estrogen.

they were frankly hyperplastic (fig. 4), and in the third they were partially atrophic and tended toward the castrate type. The endometrium of the animals in the second group, showing glandular cystic hyperplasia, was just as comparable to the human condition as that seen in the previous experiments, in which estrogen was given over a considerable period of time.[3]

Having shown that the condition of glandular cystic hyperplasia of the endometrium can be produced by surgically reducing the functional capacity of the ovary, it seemed wise to consider the effects of reducing ovarian function by other means. It was only natural that we should turn to the hypophysis on account of its well known rôle in directing ovarian function. Further it seemed eminently desirable to compare the endometrium of animals with deficient hypophyseal function with the endometrium of animals with deficient ovarian function. Accordingly a group of animals were partially hypophysectomized and the cycles and

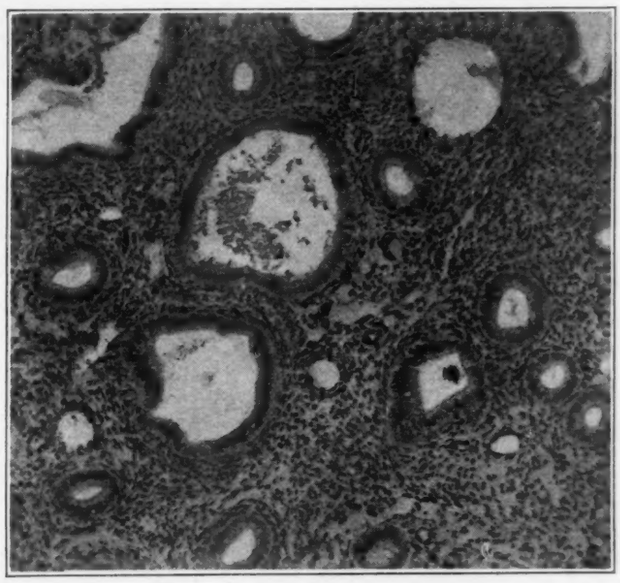

Fig. 2.—Human endometrium showing glandular cystic hyperplasia.

endometrium studied. The cycles fell into the same groups (fig. 5), and the endometrium was identical with that in the hypo-ovarian series (fig. 6).

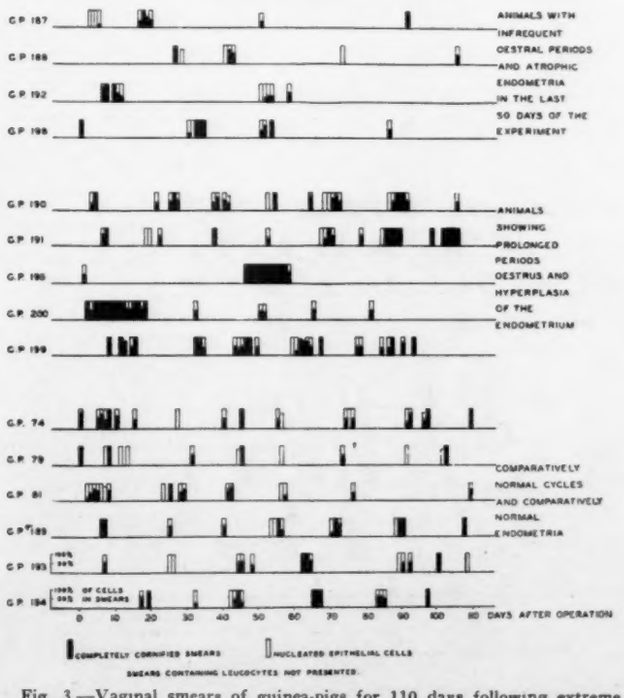
G.P. 187
G.P. 188
G.P. 192
G.P. 198
ANIMALS WITH INFREQUENT OESTRAL PERIODS AND ATROPHIC ENDOMETRIA IN THE LAST 50 DAYS OF THE EXPERIMENT
G.P. 190
G.P. 191
G.P. 195
G.P. 200
G.P. 199
ANIMALS SHOWING PROLONGED PERIODS OESTRUS AND HYPERPLASIA OF THE ENDOMETRIUM
G.P. 74
G.P. 79
G.P. 81
G.P. 189
G.P. 193
G.P. 194
COMPARATIVELY NORMAL CYCLES AND COMPARATIVELY NORMAL ENDOMETRIA
0 10 20 30 40 50 60 70 80 90 100 110 DAYS AFTER OPERATION
COMPLETELY CORNIFIED SMEARS
NUCLEATED EPITHELIAL CELLS
SMEARS CONTAINING LEUCOCYTES NOT PRESENTED

Fig. 3.—Vaginal smears of guinea-pigs for 110 days following extreme partial castration.

We have interpreted these experiments as indicating that ovarian function can be reduced by lesions affecting the ovary or by lesions affecting the hypophysis or other endocrine glands. We have designated the two types as primary ovarian failure and secondary ovarian failure. Both primary ovarian failure and secondary ovarian failure produce the same changes in the endo-

4. Parkes, A. S.: Experimental Endometrial Hyperplasia, Lancet **1**: 485 (March 2) 1935.
5. Tietze, K.: Die Follikelpersistenz mit glandulärer Hyperplasie des Endometriums in vergleichend pathologischer, experimenteller und genetischer Beziehung, Ztschr. f. Geburtsh. u. Gynäk. **108**: 79, 1934.
6. Kaufmann, C.: Die Behandlung der Amenorrhöe mit hohen Dosen der Ovarialhormone, Klin. Wchnschr. **12**: 1557 (Oct. 7) 1933.
7. Zuckerman, S., and Morse, A. H.: Experimental Production of Excessive Endometrial Hyperplasia, Surg., Gynec. & Obst. **61**: 15 (July) 1935.
8. Burch, J. C.; Wolfe, J. M., and Cunningham, R. S.: Experiments on Endometrial Hyperplasia, Endocrinology **16**: 541 (Sept.-Oct.) 1932.

metrium. These changes indicate the degree of ovarian failure and have been designated as first degree, second degree and third degree. It is of course obvious that the complete detailed presentation of all the experiments is impossible here.

Fig. 4.—Endometrium of guinea-pig showing glandular cystic hyperplasia produced by partial castration.

In our clinical studies on the human endometrium our biopsy technic has given us an unusual opportunity to study the endometrium of the same patient over a long period of time.[9] Numerous instances of the progression of one type of endometrium into another have been noted. The primary trend of the progression is toward an endometrium indicating lower degrees of ovarian function, although the progression is frequently interrupted by remissions and reversions to a more normal endometrium. Hyperplasia frequently reverts toward the normal. In a general way we have classified those syndromes described as luteal menorrhagia, irregular shredding of the endometrium, and corpus luteum persistans as first degree ovarian failure, glandular cystic hyperplasia and aluteal menorrhagia as second degree ovarian failure, and those syndromes associated with the atrophic aluteal endometrium as third degree ovarian failure.

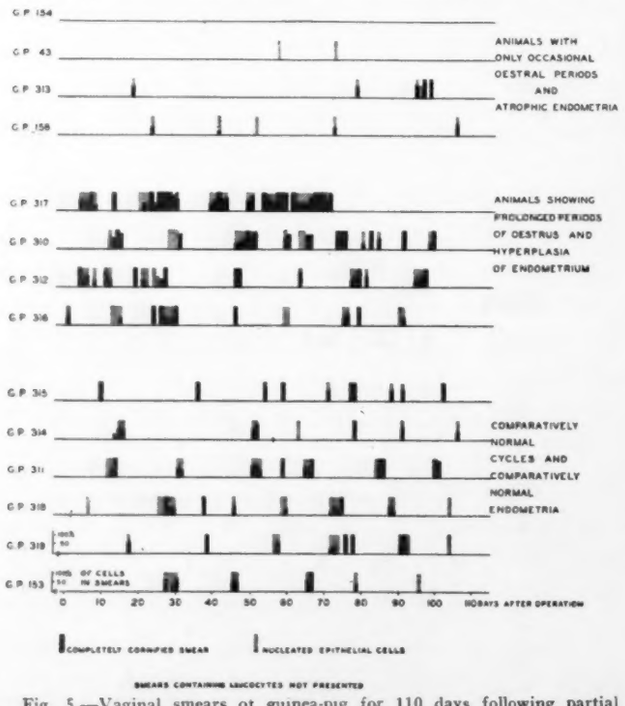

Fig. 5.—Vaginal smears of guinea-pig for 110 days following partial hypophysectomy.

In correlating the symptoms with the endometrium it has been noted that there is no single set of symptoms specifically characteristic of any grade of ovarian failure. There is, however, a tendency for the minor disturbances of flow and interval to fall into the first group, for the severe bleeding to occur in the second, and for the amenorrheas to fall into the third.

With the preceding clinical and experimental background it seemed wise to study a group of patients with menstrual disorders in regard to the degree and type of ovarian failure. The degree of ovarian failure was determined from the endometrium taken on the first day of bleeding. The type of ovarian failure, whether primary or secondary, was determined from a study of the endocrine status of the individual carried out along the lines advocated by Rowe [10] and Lawrence and summarized by Rowe in Meaker's book, with the addition of Goldzieher's test for the specific dynamic action.[11] This matter was fully discussed before this section in two papers at the last session.[12] In addition to a careful general history, physical examination and the usual laboratory studies, the determination of the basal metabolic rate, the specific dynamic action of protein according to Goldzieher's method and of the sugar

Fig. 6.—Endometrium of guinea-pig showing glandular cystic hyperplasia produced by partial hypophysectomy.

9. Klingler, H. H., and Burch, J. C.: Suction in Obtaining Endometrial Biopsies, J. A. M. A. **99:** 559 (Aug. 13) 1932. Burch, J. C.; Phelps, Doris, and Wolfe, J. M.: Endometrial Hyperplasia, Arch. Path. **17:** 799 (June) 1934. McClellan, G. S.; Phelps, Doris, and Burch, J. C.: Endometrial Studies, Endocrinology **19:** 321 (May-June) 1935.

10. Rowe, A. W.: Studies of the Endocrine Glands: I. A General Method for the Diagnosis of Abnormal Function, Endocrinology **12:** 1 (Jan.-Feb.) 1928.

11. Goldzieher, M. A., and Gordon, M. B.: Determination of the Specific Dynamic Action of Protein and Its Value in the Diagnosis of Pituitary Disease, Endocrinology **17:** 569 (Sept.-Oct.) 1933.

12. Bland, P. B.; First, Arthur, and Goldstein, Leopold: The Clinical Investigation of Functional Sterility in the Female, J. A. M. A. **105:** 1231 (Oct. 19) 1935. Titus, Paul: Sterility: Analysis of Cause and Treatment, ibid. **105:** 1237 (Oct. 19) 1935.

tolerance according to Rowe's galactose method [13] were done on all patients. In arriving at a diagnosis the history, physical examination, routine laboratory and special tests were all considered in the light of the generally accepted views concerning the changes produced in endocrine diseases. The more important of these are shown in table 1. In all, thirty-one cases have been studied. The usually accepted deviations of the special tests in endocrine disease are shown in table 1. The cases are presented with the results of examination classified according to the diagnosis in tables 2, 3, 4 and 5. The averages of the basal metabolic rate, the specific dynamic action of protein and the galactose tolerance test for the groups and for the series are given in table 6.

TABLE 1.—*Changes Produced by Endocrine Diseases*

Observations	Normal	Anterior Pituitary Dysfunction	Bilobar Pituitary Failure	Thyroid	Ovary
Basal metabolism, per cent	−10 +10	<<-<	<<-<	<<<-<<	<
Specific dynamic action of protein	10-16%	<<<	<<<	N	N->
Galactose tolerance	40 Gm.	<<-<<<	>>->>>	<->	<<<-<<
Pulse	68	N-<	N-<	<-<<	N->
Temperature	98.6	N-<	N-<	<<	N or >
Respiration	17	N	N	<-<<	N->
Blood pressure	120/80	N-<	N-<	<-<<	<-<<

TABLE 2.—*Cases Showing Evidence of Primary Ovarian Disturbances*

Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams	Biopsies
F. N.	23	Regular periods, very profuse flow	−10	21	15	1° failure
J. E.	21	Periods usually regular, varying amount of flow	− 1	12	30	1° failure
G. E.	29	Regular periods, profuse flow, slightly prolonged	−12	9	20	1° failure
F. M.	17	Irregular periods, sometimes normal profuse flow, often prolonged	− 2	12	15	1° failure 10/15/35 2° failure 11/20/35
E. M.	35	Has never had regular periods; interval long or short, profuse prolonged flow	− 3	13	30	2° failure
L. H.	20	Prolonged profuse periods of irregular interval, occasional normal regular period	−12	13	15	2° failure 9/16/36 1° failure 10/18/36 2° failure 11/ 1/36 2° failure 11/25/36
M.W.	37	Profuse, moderately prolonged periods, increased irregular interval	+ 8	13	30	2° failure
M. T.	44	Long intervals, profuse prolonged flow	+11	9	30	2° failure
Average 8	28.3		−2.6	12.8	23	

TABLE 3.—*Cases Showing Evidence of Thyroid Hypofunction*

Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams	Biopsies
C. B.	30	Slightly irregular periods, profuse flow, normal duration	− 8	10	35	1° failure
H. O.	33	Very long irregular periods, occasional scanty flow	−22	13	30	2° failure
I. S.	29	Profuse irregular flow, long periods, irregular increased interval	−23	15	45	2° failure
D. F.	36	Profuse periods 10-20 days duration, short intervals	−12	15	20	2° failure
M. D.	29	Scanty periods, occasionally irregular profuse periods, increased interval	−19	12	20	2° failure
C. S.	43	Periods of profuse flow up to 6 weeks	−19	14	35	2° failure (6 biopsies)
D. S.	25	Severe almost continual bleeding for 1 yr., very short intervals	−19	10	50	2° failure (4 biopsies)
M. B.	28	Profuse moderately prolonged periods, interval decreasing	−15	12	80	2° failure
Average 8	31.6		−17.1	12.6	39.4	

TABLE 4.—*Cases Showing Evidence of Anterior Pituitary Dysfunction*

Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams	Biopsies
E. J.	33	Profuse slightly prolonged periods, intervals normal	± 0	1	25	1° failure
A.H.T.	35	Periods profuse, intervals usually normal	− 3	0	25	1° failure 1/ 4/34 2° failure 1/15/36
W. D.	47	Profuse irregular prolonged periods	−13	0	25	2° failure 8/19/35 1° failure 9/ 4/35 1° failure 11/23/35
C. B.	20	Profuse, prolonged irregular periods; has never been regular	−11	2	15	2° failure
S.McC.	17	Profuse irregular periods, prolonged intervals; has never been regular	− 1	4	10	2° failure
O. T.	27	Profuse irregular periods, "spots" at times; sometimes has normal flow	− 6	6	20	2° failure
S. T.	40	Profuse prolonged period, long intervals, occasionally regular	− 6	0	20	2° failure
J. E.	28	Scanty periods and long intervals following prolonged profuse periods	−12	6	35	3° failure
C. S.	27	Scanty periods long intervals, 4 years of decreasing amount of flow	− 6	6	20	3° failure
A. Y.	46	Profuse periods at times; scanty flow generally increasing interval	− 9	0	15	3° failure
Average 10	32		−6.7	2.5	21	

COMMENT

The experimental data clearly show that primary and secondary ovarian failure are capable of producing the same endometrial lesions. The clinical correlation of symptoms and endometrium indicates that there is no single endometrial lesion always associated with a specific menstrual history, although there is a general tendency for certain symptoms to predominate in certain groups. We are not prepared to defend the accuracy or specificity of the tests in all instances. In some instances, undoubtedly, a case has been incorrectly classified, as the lines of division between the types are not always clear. Admitting these weaknesses and the fact that as knowledge advances our conception of endocrine disease will materially change, we nevertheless believe that the clinical data, taken as a whole, strongly supports our experimental observations.

Our clinical and experimental observations indicate the fallacies of present treatment. Serious discrepancies arise over the relative merits of the various treatments for the disorders of flow and interval. Some put their faith in thyroid, some in extracts of pregnancy urine and others in pituitary extracts or substance. All these

13. Rowe, A. W.: Sugar Tolerance as an Aid to Diagnosis, J. A. M. A. **89**: 1403 (Oct. 22) 1927.

are good in a certain percentage of cases but fail in the majority of instances. Since evolving this conception of menstrual disorders we have treated, to the best of our knowledge, the primary focus of the disease. It is still too early to evaluate this treatment clearly but our clinical impression is one of a definitely improved therapy. Surgery, of course, has been necessary in some, and the results as usual are brilliant. It should be borne in mind that, no matter how brilliant the surgical result, it is at best a symptomatic cure. The glandular disturbance is not removed, and most active surgeons will find several instances among their patients in which the symptom has been surgically relieved but the endocrinopathy remains to invalid the patient.

TABLE 5.—*Cases Showing Evidence of Bilobar Pituitary Failure*

Patient	Age	Menstrual Symptoms	Basal Metabolic Rate, per Cent	Specific Dynamic Action of Protein, Point Rise	Galactose Tolerance in Grams	Biopsies
J. C. E.	23	Periods have never been regular, 3 wks. to 3 mos. apart, duration 6-10 days	— 3	0	50	1° failure
M. P.	36	Prolonged profuse periods, prolonged irregular intervals	—11	6	40	2° failure (2 biopsies)
M. H.	45	Irregular, profuse and prolonged periods, short intervals	—15	0	50	2° failure
R. B.	28	Profuse moderately prolonged periods, irregular intervals	+ 1	4	50	2° failure (4 biopsies)
B. C.	49	Irregular, prolonged periods, scanty flow at times, interval variable	—15	6	6	2° failure (3 biopsies)
Average 5	36		—8.6	3.2	50	

TABLE 6.—*Summary of Endocrine Cases Causing Menstrual Disorders*

Observations	Anterior Pituitary Dysfunction	Bilobar Pituitary Failure	Thyroid Hypofunction	Ovarian Hypofunction	Average of All Cases
Basal metabolism	—6.7	—8.6	—17.1	—2.6	—8.6
Specific dynamic action of protein	2.5	3.2	12.6	12.8	7.8
Galactose tolerance	21 Gm.	50 Gm.	39.4 Gm.	23 Gm.	30 Gm.
Average age	32	36	31.6	28.3	31.9
Number of cases	10	5	8	8	31

CONCLUSION

We conclude that the disorders of menstrual interval and flow are the result of an ovarian underfunction. The severity of this underfunction is indicated by the state of the endometrium. The ovarian condition may be the result of a primary lesion in the ovary or may arise as a secondary manifestation to a lesion in other endocrine glands. Crude clinical methods are at hand for the determination of the type of endocrinopathy present. Intelligent treatment must consider these facts.

ABSTRACT OF DISCUSSION

DR. J. P. PRATT, Detroit: The title as stated is not entirely justified by the material offered, because menstrual disorders have not been classified in the paper. The authors have presented, however, an enumeration and correlation of some of the causes of menstrual disorders. The method of studying changes in the endometrium by repeated biopsies is a creditable contribution, but interpretation of the entire endometrium from a small fragment of tissue incurs certain difficulties. Bartelmez, who has studied the endometrium of uteri during menstruation, concludes that the only characteristic of normal menstrual endometrium is bleeding. He finds in the same specimen areas of desquamation, regeneration, hemorrhage and progestational hypertrophy. Biopsies taken on the first day of bleeding might not indicate, therefore, the true state or even the average of the whole endometrium. On the other hand, if a large number of specimens are available for comparison, they have at least a relative value. The postulate that, "since glandular cystic hyperplasia of the endometrium is the result of the prolonged secretion of estrogen, it cannot occur in patients whose ovaries contain active corpora lutea," may be questioned. It is well known that estrogenic substances are normally secreted by the ovary throughout the cycle. The source of this secretion is not only the granulosa cell but also the luteal cell. Furthermore, hyperplasia of the endometrium does occur in the presence of corpora lutea as well as in their absence. The microscopic appearance of such corpora lutea indicates a normal activity. May it be a question then of definition of hyperplasia of the endometrium? Only underfunction of the ovary has been mentioned as a cause of menstrual disorder. Is hyperfunction intentionally denied or implied? If so, how should one explain the increased flow associated with inflammations involving the ovaries? The quantitative changes in function have been well emphasized, which correctly implies that qualitative changes in ovarian secretion do not occur. It is true that different hormones have been isolated from the ovary, theelin and its derivatives and progestin. The evidence so far presented indicates variation in quantity of these hormones and not their quality. While considering the influence of other glands on the uterus through the ovary, might it not be well also to consider a possible change in receptivity of the uterus? No doubt the ability of the endometrium to respond is conditioned by a number of agents. The study of menstrual disorders is complicated. The authors wisely claim no finality.

DR. E. C. HAMBLEN, Durham, N. C.: During the past two years my associates and I have studied 358 consecutive patients with functional bleeding. Clinical and laboratory data in these cases have been correlated. The responses to various forms of therapy have been considered. Specimens of endometrium from these cases available through biopsy, curettage and hysterectomy have been reviewed. In instances in which laparotomies have been necessary, the gross appearance and measurements of ovaries have been recorded and, where ovarian material has been available for microscopic studies, the entire material has been reviewed. Of these 358 patients, 172 were bleeding actively at the time the endometrial specimens were obtained. Of the latter, 146 were bleeding from an interval type of endometrium which showed no evidence of tissue shedding. In this group of cases, four general patterns of endometrium were observed: an atrophic or senile pattern, attributed to an anestrogenic or hypo-estrogenic phase, was observed in 38 cases; an early or midinterval pattern, not different histologically from the usual estrogenic phase, occurred in six cases; a pattern that showed moderate irregularity in gland size but without evidence of thickening or hypertrophy, attributed to an arrested estrogen phase, was found in thirty-four cases; actual endometrial hyperplasia of the classic type, attributed to a phase of prolonged estrogenic action, was observed in sixty-eight cases. Of the twenty-six cases in which bleeding occurred from endometrium in which there were progestational glands, nine showed no evidence of tissue shedding, eight showed irregular and incomplete shedding and nine showed tissue loss characteristic of the normal menstruating endometrium. Patchy distribution of the progestational glands characterized those instances in which no tissue loss was observed. In five cases there had occurred apparently a progestational phase following a phase of estrogen arrest, while in four cases this progestational reaction had followed a phase of prolonged estrogenic action. It is evident that functional bleeding occurs in the vast majority of instances from an estrogen type of endometrium. Only about 45 per cent of such cases showed the classic pattern of endometrial hyperplasia. We object to the term endometrial hyperplasia, especially when used to cover the various patterns of estrogen or interval endometrium associated with functional bleeding. Dr. Burch and his associates have essayed a difficult task in attempting to diagnose and classify menstrual disturbances, especially those cases in which the ovarian-endometrial disturbance is secondary to dysfunction in other endocrine glands, such as the pituitary and thyroid.

DR. JOHN C. BURCH, Nashville, Tenn.: The term endometrial hyperplasia is, perhaps, a bad one. We have recognized this and discussed it at length in previous papers. The general use and understanding of the endometrial groups we have described today should help in clearing up the terminology. True glandular cystic hyperplasia of the endometrium does not and cannot occur in the presence of an active corpus luteum. The hormone of the corpus luteum in sufficient concentration and acting over sufficient time produces certain characteristic changes in the estrogen sensitized endometrium. In the early stages of its action the changes in the endometrium may be overlooked, but these changes should be definitely present by the time of menstruation. If they are overlooked, it is because the action of the corpus is abnormally weak or absent altogether. If a mistake in diagnosis is made at this time, it is of only theoretical importance, as it makes little practical difference whether the case is classified as a severe first degree failure or a mild second degree failure. The biopsy instrument has been of considerable of help to us. It is a reliable and safe procedure for obtaining endometrial tissue in the office or clinic. Anesthesia is not necessary. The amount of tissue obtained has been adequate for our purposes. If more is desired, the instrument can be inserted a number of times. The mechanism of bleeding in pelvic inflammation is not settled at present. Some cases of bleeding are probably the direct result of damage to the ovary, while others are not. Fluhmann discussed the question in a paper before this section five years ago.

MANAGEMENT OF FACIAL INJURIES CAUSED BY MOTOR ACCIDENTS

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DETROIT

In its relatively short career, the motor car has already brought about more casualties in the United States than all the wars in which this country has been engaged. In 1935 alone, motor car accidents caused approximately 36,000 deaths and a far greater number of severe injuries. So serious has the situation become that traffic and safety engineers, public officials and educators have set about intensively to seek a solution of this problem. Safety campaigns have stressed the harrowing picture of "Sudden Death."[1] More tragic than sudden death, however, is the suffering borne by the injured who escape it. And more pitiable even than the immediate period of pain and disability is the suffering, through long bitter years of mental agony, of those left with lasting, conspicuous facial disfigurements.[1] The psychologic handicap imposed by unprepossessing or even relatively minor disfigurements has helped to blight many promising business and social careers and has helped to swell the ranks of the unemployed and unemployable.[2]

Hence the need of again calling attention to certain essentials in the management of acute facial injuries and their late sequelae. The hasty "emergency care" usually given these victims often jeopardizes the possibility of a good end result. The necessity of careful, meticulous care according to well established principles derived from experience with such injuries cannot be too strongly emphasized.

Facial injuries resulting from motor accidents may be classified according to two general types: (1) injuries to the driver ("steering post injuries"[3]); (2) "guest-passenger injuries." These two types, because of the different factors which produce them, are usually quite distinctive.

"Driver injuries," because of the relative protection afforded the driver by the steering wheel to which he may cling for support, are the least frequent variety. It is remarkable how often, even after a violent smash-up, the driver emerges free from injury. If, on the other hand, the driver relaxes his hold on the wheel, falls asleep or is subjected to an unusually sharp impact, his head may be projected forward so that the chin strikes the center of the wheel. This results in a typical "steering post injury," namely, laceration and contusion of the chin associated with fractures of the mandible (symphysis, necks of the condyles, and so on). When the force of the impact is even greater, the head may be projected forward to the point where the face is thrown down on the steering wheel. In such instances the upper jaw (maxilla, malar bones) receives the brunt of the blow (fig. 1).

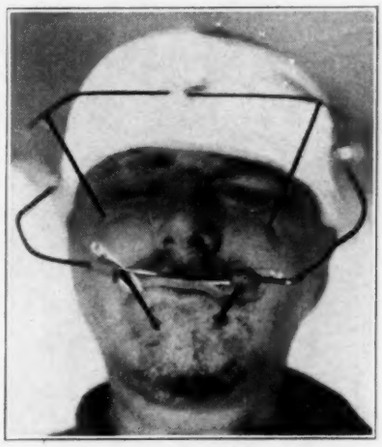

Fig. 1.—Severe steering post injury. Chin laceration; fracture of symphysis; bilateral fracture of neck of condyles; transverse maxillary fracture; compression fracture of left malar and maxilla. Serious breathing difficulty corrected by traction on wires through lower lip to arch wire from head cast. Maxilla wired by Federspiel's method.

"Guest-passenger injuries," i. e., injuries of persons riding in the front seat beside the driver, are more frequent. In my experience they constitute about 75 per cent of severe, crushing, facial injuries sustained in motor accidents. The majority of these victims are young women. Lacking the support of a structure comparable to the steering wheel, guest-passengers are thrown forward more violently at the impact. The injury is sustained when the head strikes the instrument panel with resultant crushing of the midportion of the face. These injuries—chiefly fractures and depressions—involve the maxilla and the nasal and malar bones as well as the orbit and eyeball. Projecting objects on the instrument panel (handles, knobs and cranks) add to the hazard.

Fig. 2.—Guest-passenger injury. Fractured nose, malars, maxilla and mandible.

Read before the European Congress of Plastic Surgeons in Brussels, Belgium, Oct. 4, 1936.

Owing to lack of space, a number of illustrations have had to be omitted from this article as published in THE JOURNAL. The complete article will appear in the reprints, a copy of which may be obtained on application to the author.

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2. Straith, C. L.: Plastic Surgery: Its Psychological Aspects. J. Michigan M. Soc. **31**: 13 (Jan.) 1932.
3. Straith, C. L.: Treatment of Facial Wounds Due to Motor Accidents, J. Michigan M. Soc. **47**: 1249 (Feb.) 1935.

Elimination of such objects from the passenger's side of the instrument panel should be attempted by motor car engineers. The use of "crash padding" might do much to minimize the seriousness and extent of these injuries (fig. 2).

PRELIMINARY EXAMINATION AND TREATMENT

To obtain successful and satisfactory end results in the surgical treatment of these injuries, a systematic

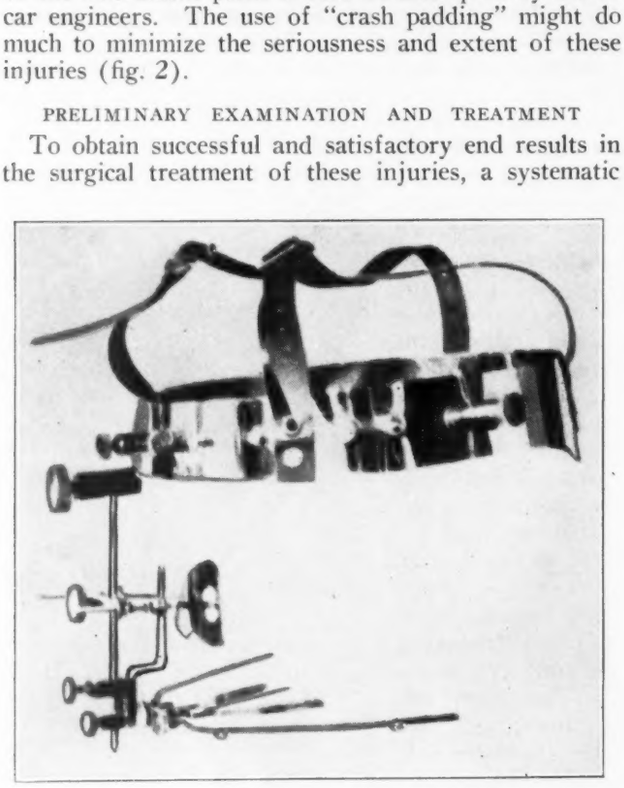

Fig. 3.—Author's apparatus for treating fractured facial bones. Head band has anterior and lateral binding posts and knobs for suspension of maxillary fractures and other attachments. There is an adjustable nasal assembly for elevation of the nasal bridge and compression of the sides of the nose and a maxillary splint adjustable to different size jaws with fixed side arms for upward traction if needed. The head band should be embedded in a plaster cast for proper fixation.

examination of the patient is of primary importance. The following routine is suggested:

1. *Careful inspection and cleansing of all lacerations, with removal of gross foreign bodies.* This is a very necessary and important first step, which must not be neglected. Hurried closure of wounds with skin clips and heavy suture materials (heavy silk or catgut) is to be condemned. Surgical repair should not be attempted until it can be done properly under conditions that will leave a minimal scar.

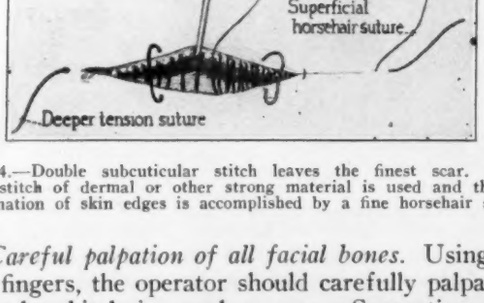

Fig. 4.—Double subcuticular stitch leaves the finest scar. Deeper tension stitch of dermal or other strong material is used and the exact approximation of skin edges is accomplished by a fine horsehair stitch.

2. *Careful palpation of all facial bones.* Using both index fingers, the operator should carefully palpate the forehead, orbital rims and zygoma. Separation of the malar attachments, depressions and eversions of the zygoma and depressed malar fragments at the infra-orbital foramen may thus be detected. The latter condition can also be recognized by intra-oral palpation with the index fingers, which detects prominent bone edges. Anesthesia of the lateral surface of the nose and upper lip on the affected side is a frequent finding in these fractures.

3. *Palpation of the nose and intranasal inspection.*

4. *Inspection and palpation of the oral cavity.* This step is of extreme importance, since it will often reveal maxillary lesions otherwise overlooked, lateral or downward displacement of the maxilla caused by transverse fracture, and midline or unilateral maxillary compression fractures. Mandibular fractures usually are easily recognized. When chin lacerations are present they should always be suspected and a careful search should be made to determine the presence of fractures of the necks of the condyles. Backward displacement of the mandible in fractures of the condyles may give rise to serious respiratory difficulties that require immediate attention (fig. 1).

WOUND CLOSURE

Every effort must be made at the onset to conserve tissue. Hence severed portions of skin (after denuding the subcutaneous fat) should be replaced immediately and sutured in place in the manner of a Wolfe graft.

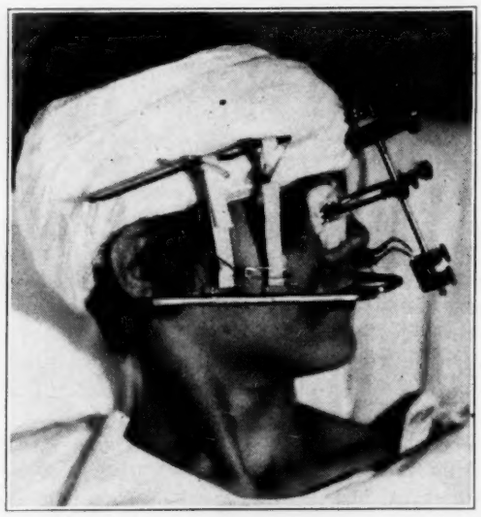

Fig. 5.—Plaster head cap makes excellent firm attachment for nasal appliance. Nasal bones were held up and lateral pressure applied by author's appliance. Maxillary splint was held up by elastic traction to coat hanger wire attachments embedded in plaster cap. Light elastics should be used or an impaction of the maxillary fracture with overcorrection may be produced. These side arm splints have now largely been discarded.

This is followed by the application of a pressure dressing. The abundant circulation of the face will often save an apparently useless skin flap. The same applies to ears and nasal tips that have been partially or almost completely severed.

After the wound has been carefully cleansed, the jagged skin edges are trimmed to straight lines. Buried dermal sutures are then placed to relieve tension. I prefer a double subcuticular stitch, since it leaves the least conspicuous scar. Deep skin layers are approximated by a subcuticular stitch of dermal or other fine though strong suture material. The surface is approximated accurately with a subcuticular horse hair suture threaded on a small eye-needle, which is passed just beneath the surface epithelium. In long wounds the stitches should be brought to the surface at intervals of one inch so that they may subsequently be cut and removed in sections. The horsehair suture is removed in forty-eight hours, the other sutures in from seven to ten days (fig. 4).

Interrupted sutures of horsehair may also be used for skin approximation. Stitch marks will be avoided if only the first double twist is used in tying the surgical knot.

FRACTURES

Nasal Fractures.—Simple nasal deviations can often be corrected by thumb pressure under local anesthesia. Nasal bones torn loose from the frontal bone must be brought back to their normal position and wired to the frontal bone through drill holes placed in each bone. In crushing nasal injuries I prefer to raise the nasal bones under local anesthesia and apply a plaster head cast and a special splint which holds the nasal bones in place, shapes them by lateral pressure and, at the same time, permits nasal drainage (figs. 3, 5 and 6).

Malar Bone Fractures.—Fractures of the malar bone, if left untreated, leave very conspicuous deformities. Hence every effort should be made to restore and maintain proper elevation. This can be accomplished by several methods: 1. Grasping and elevating the bone by means of a large towel clip inserted through an incision in the lower eyelid and cheek (Gill [4]). 2. Opening the canine fossa and elevating the malar bone through the antrum; if necessary to maintain elevation, the antrum may be packed. 3. Elevating the malar bone by means of an antrum trocar inserted into the antrum through the nose (Shea [5]). 4 (author's method). Passing an antrum trocar or a heavy curved instrument through the mucous membrane behind the last upper molar up and beneath the malar bone behind the maxilla. Upward pressure against the depressed portion usually suffices to elevate it satisfactorily (fig. 7). If this fails to maintain proper elevation, the antrum may be packed or the fragments may be wired in place through drill holes at the frontal attachment (Gill [4]).

Fig. 6.—Profile view six months after patient was treated for crushed nose and maxilla. The teeth are in excellent occlusion and the nose is well formed.

4. Gill, W. D.: Fractures of Facial Bones, South. M. J. **27**: 197 (March) 1934.

5. Shea, J. J.: The Management of Fractures Involving the Paranasal Sinuses, J. A. M. A. **96**: 418 (Feb. 7) 1931.

Maxillary Fractures.—The preparation, adjustment and proper fitting of jaw splints for maxillary fractures requires a special technic and equipment not always available. For the surgeon not versed in this method, Federspiel's [6] technic provides a simple and satisfactory alternative. A No. 12 gage, preferably half-round, steel wire is firmly attached to the teeth of the upper arch. Brass fracture wire is then looped around this wire in the bicuspid region on each side (fig. 8). The ends of these wires are then threaded on a large curved needle and passed through the cheek just above the malar bone on each side. A plaster head cast with

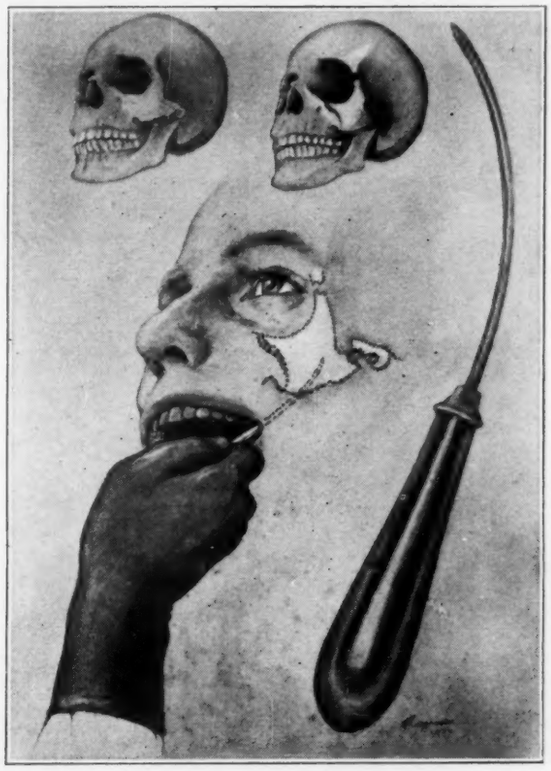

Fig. 7.—Author's method of elevating depressed malar by means of antrum trocar or other strong curved instrument. This method is simple and efficient in most cases.

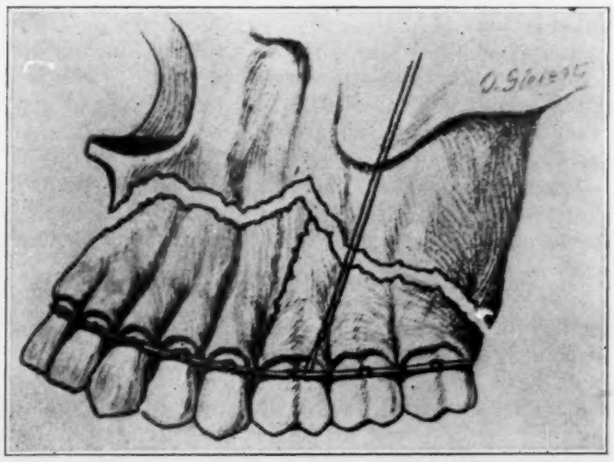

Fig. 8.—Federspiel's method of elevating fractured maxillae. Arch bar wired firmly to the upper teeth and traction wires attached in the bicuspid region and then passed through the cheek to head band. (Courtesy of Dr. Federspiel.)

6. Federspiel, M. N.: Treatment of Fractured Maxillae, Wisconsin M. J. **33**: 561 (Aug.) 1934.

coat-hanger wire attachments embedded in the plaster is next applied. The maxillae are then forced upward into proper position and maintained there by joining the ends of the brass wire to the attachments on the head cap. This method permits cleansing of the mouth and an accurate adjustment of the upward traction on the maxilla. This method obviates the necessity of

Fig. 9.—Guest-passenger injury. Fractured nose deviated to left. Fractured right malar bone, maxilla and mandible. Typical treatment. Head cast with forehead binding post and coat-hanger side wires; nasal fracture held over to right by author's nasal splint; maxillae held up by wires through cheeks to arch bar on teeth; malar bone elevated by author's method and held up by lateral pad held on by coat-hanger wire spring from anterior binding post. Arch bar on lower teeth; elastic traction to upper arch.

applying side arm splints, which may become dislodged. The small puncture marks through the skin of the cheek are scarcely discernible after a few weeks. I have never encountered serious infection around these wires (figs. 9 and 10).

Risdon [7] has suggested a simple method of applying an arch wire: A long wire is twisted firmly around each last molar. The wires from each side are then brought to the front and twisted together. These arch wires are then firmly wired to all teeth of the upper jaw. The traction wires are then attached to this wire arch as described.

Edentulous fractured maxillae may be treated in the same manner by drilling holes between the teeth of the denture and attaching traction wires to the artificial teeth.

Mandibular Fractures. — The intermaxillary loop method of wiring is the best method in the absence, of course, of associated maxillary fracture. When both jaws have been fractured, the maxilla is treated by Federspiel's method. After fixation of the maxilla, an arch bar is wired to the mandible; elastic traction is then applied between them. Bands cut from a quarter inch gum rubber tube serve the purpose nicely.

In fractures of the necks of the condyles associated with serious respiratory difficulties, traction wires are fixed to the cuspid region of the lower arch bar and passed through the lower lip. The jaw is held forward by attaching these traction wires to an arch of wire extending from a plaster head cast or to some apparatus on the bed (fig. 1).

7. Risdon, F.: Personal communication to the author.

Anterior displacements of the mandibular angle or the posterior fragment are held back by silver wire looped through drill holes in the angle of the mandible. These wires are then attached to hooks embedded in a plaster head cast (Ivy) (fig. 10).

SEQUELAE

In spite of every precaution, infections as well as other complications may supervene and make immediate surgical treatment impossible. Scars, crushed facial bones, loss of eyebrows, ears and nose—all such disfigurements require subsequent correction if the victim is to take his place again in society. Plastic procedures should not be undertaken, however, until the lapse of two months after every vestige of infection has disappeared. To intervene prematurely in these cases is to court disaster.

Old scars should be excised and resutured with subcuticular stitches as described (fig. 4). Depressions of the nose, forehead or malar prominences should be built up with rib cartilage transplants. Before applying the cartilage transplant, one should make a lead model made from a plaster impression of the face. At the operation, the cartilage should be trimmed to fit the depression on the sterilized lead model. This insures greater accuracy in restoring the normal contour.

Severed noses may be replaced by one of several well known plastic procedures. It is important that the skin to be transplanted should match the integument of the face in both color and texture. In women, the forehead flap method is most satisfactory. The resultant forehead scar can easily be concealed by the hair dress. In man, I prefer to use the skin beneath

Fig. 10.—Fractured malar bone, maxilla and left angle of mandible with marked overriding of posterior fragment of mandible. Treatment: Malar raised: arch bar and wires on maxilla; drill hole through angle of mandible and wire loop through bone; elastic traction from wire to hook on head cast to correct the overriding of posterior fragment.

the ear and overlying the sternocleidomastoid muscle.[8] This is brought to the face by way of a tube pedicle. Skin derived from this source is thin, flexible and practically hairless; in color and texture it closely matches the skin of the face.

8. Straith, C. L.: A Method of Rhinoplasty, Rev. de chir. Plastique. August 1933.

SUMMARY AND CONCLUSIONS

1. Motor accidents are occurring with increasing frequency, so that severe facial injuries necessitating surgical treatment are becoming more numerous.

2. Facial disfigurements are a source of great mental anguish and not infrequently engender psychologic handicaps that ruin social and business careers. The ranks of the unemployed and unemployable are already large enough in these days of keen competition without adding unnecessarily to their numbers persons physically and mentally handicapped by preventable and curable facial defects.

3. Proper attention to details of diagnosis and treatment at the time of first aid treatment is necessary if good results are to be obtained.

4. When infections and other complications prevent proper care soon after the accident, plastic procedures should be deferred to a later date.

5. No surgical treatment should be attempted until it can be done properly. Every effort from start to finish should be directed toward minimizing scar formation and restoring the patient to society with the least deformity in the shortest possible time.

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CHRONIC THYROIDITIS

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In recent years attention has been called to a peculiar disease of the thyroid gland which is characterized by extensive lymphocytic infiltrations, marked reduction of the parenchyma and fibrosis. This disease, which occurs almost exclusively in women, starts insidiously and takes a very chronic course. The clinical manifestations are chiefly due to the pressure of the hardened gland on the trachea, and in the majority of the cases no symptoms of a disturbed thyroid function are encountered. The basal metabolic rate is often within normal range. In a few instances it is increased or diminished. After radical operation myxedema has been observed in about 40 per cent of the reported cases. Since the lymphocytic infiltrations frequently cause an enlargement of the gland, the disease has been classified among the goiters and the misleading adjective "lymphomatous" has been used. Hashimoto has been credited as being the first author to describe this type of goiter, and the term Hashimoto's goiter is often found in the literature (Graham and McCullagh,[1] Clute, Eckerson and Warren,[2] Lee [3] and Emerson [4]). The etiology and pathogenesis of Hashimoto's goiter are still matters of much discussion and there is also considerable controversy as to the relations between Hashimoto's goiter and Riedel's goiter. Many investigators (Boyden, Coller and Bugher,[5] Ewing,[6] Heineke,[7] Heyd,[8] Perman and Wahlgren,[9] Reist,[10] Shaw and Smith [11] and others) see no reason for separating the two types of goiter, and indeed the histologic pictures of the two are so similar that in a given case it may be difficult to decide whether one is dealing with Riedel's type or Hashimoto's type. The differences that are found are quantitative rather than qualitative in nature. Clinically and macroscopically there are sufficient dissimilarities to warrant, at least for the present time, the differentiation of the two types (Graham and McCullagh [1] and Lee [3]), although the two are unquestionably closely related to each other. Wegelin [12] includes both under the general term chronic thyroiditis.

It has been repeatedly regretted that the knowledge of Hashimoto's goiter is based mainly on the material removed at operation and that studies of autopsic material are wanting. It has also been stated that nothing is known about the changes into which the lymphocytic infiltrations of the thyroid gland may terminate. I have observed at the autopsy table lesions of the thyroid which in every respect are identical with those given as characteristic of Hashimoto's goiter, except that the gland is not enlarged but is either of normal size or is smaller than normal. Since, put together, these cases form a continuous line of progressing changes which lead to a well defined pathologic condition that is rarely recognized during life, I have thought it worth while to report briefly on my studies.

EXTENSIVE LYMPHOCYTIC INFILTRATION AND FIBROSIS OF THE THYROID GLAND

Four cases belonging to the group in which there was extensive lymphocytic infiltration and fibrosis of the thyroid gland came under my observation and all of these were in women. The thyroid had retained its normal shape, could be easily dissected out and varied in weight between 14 and 25 Gm. The consistency was firm and scarlike, the capsule was thickened and the surfaces made by cutting presented a pale pink gray to a light yellow tan with fine, branched, whitish lines. No structures resembling normal thyroid tissue could be made out with the naked eye. Histologically dense lymphocytic infiltrations and a varying degree of fibrosis were the most striking manifestations. The infiltrations surrounded, invaded and replaced the follicles, the colloid of which had disappeared, while the lining epithelium was desquamated, degenerated and shrunken. In many places the lymphocytes formed nodules with centers that were composed of larger lymphoid cells and swollen reticular cells. Plasma cells were scanty and no giant cells could be found. The wall of the arterioles and small arteries was thickened, and in one of the cases this thickening was very marked. The interlobular and intralobular connective tissue was increased, and in some instances the fibrotic areas predominated over the lymphocytic infiltrations. Three cases showed small islands of fairly intact follicles, which

From the Department of Pathology of the Cook County Hospital and the Uihlein Memorial Laboratory of the Grant Hospital.

Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

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were enclosed in dense connective tissue, and in these three cases the lesion of the thyroid was merely an incidental finding. One of the patients, a white woman aged 52, had committed suicide by drinking lye. The second patient, a Negress, aged 57, had died of acute yellow atrophy of the liver, and the cause of death of the third patient, a white woman, aged 28, was a verrucous endocarditis complicated by a subacute glomerulonephritis. The fourth case, which disclosed the most extensive changes of the thyroid, is described in detail:

CASE 1.—*History.*—A white woman, aged 58, of American descent, entered the hospital complaining of pain over the left side of the chest and heart, fainting spells, swelling of the hands and eyelids and progressive weakness, which had started six months before. The last menstrual period had occurred at the age of 30.

Examination.—On physical examination the patient was moderately obese and listless. The skin was dry, thickened and waxy with a slight degree of scaling. The hair of the head was coarse and dry and the hair of the pubic region was very scanty. The heart and lungs did not show any abnormal changes except that the heart tones sounded distant. The Wassermann reaction of the blood was strongly positive, that

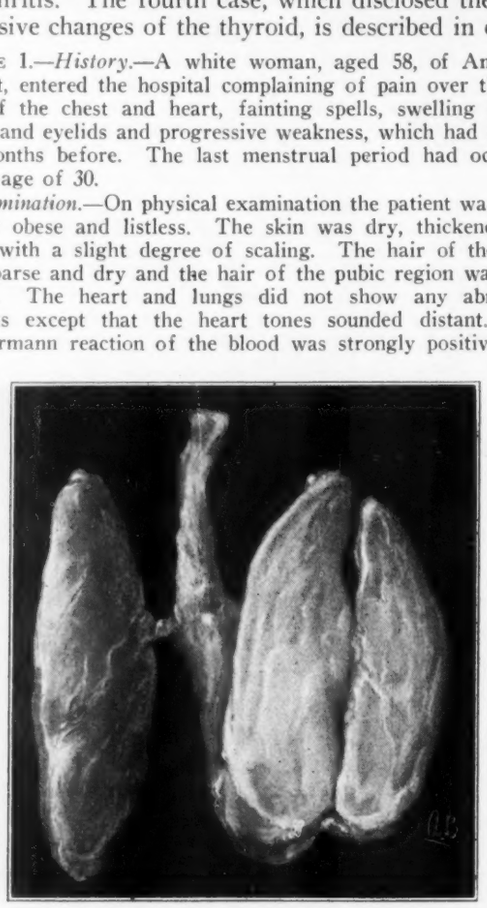

Fig. 1 (case 2).—Gross appearance of the thyroid.

of the spinal fluid negative. The urine did not contain albumin or sugar. The hemoglobin content of the blood was 60 per cent, the erythrocyte count was 4,650,000, and the leukocyte count was 14,000. There were 68 per cent neutrophils, 27 per cent lymphocytes, 3 per cent monocytes and 2 per cent eosinophils. The patient was very uncooperative and a determination of her basal metabolic rate could not be made. The diagnosis was "myxedema" and under thyroid medication the patient improved gradually. After three weeks she started to lose ground rapidly, the temperature rose to 102.6 F. and she died four weeks after admission.

Autopsy.—The body weight was 73 Kg. and the body length was 152 cm. The skin was dry and scaly and in the region of the thighs somewhat resembled fish skin. The heart weighed 280 Gm. There was a syphilitic aortitis, which involved the arch, and a marked atheroma of the abdominal aorta and the coronary arteries. There was an arteriosclerotic granulation of the kidneys and an apical scarring of both upper pulmonary lobes. The liver weighed 1,440 Gm., the spleen 125 Gm. and the adrenals 7 Gm. The thyroid weighed 17 Gm. and was firm in consistency and a pale pink gray. The internal genitalia were atrophic. The brain weighed 1,190 Gm. and there was a marked thickening of the leptomeninges, especially about the frontal lobes.

Microscopic Examination.—In the leptomeninges there were perivascular infiltrations of lymphocytes, which extended into the cortex. The cortex showed tigrolysis and neuronophagia of the nerve cells and a diffuse proliferation of the microglia cells. The epidermis was thin and atrophic, while the cutis appeared thickened and contained a pale stained homogeneous material between the connective tissue bundles. The changes of the aorta were typical of syphilitic aortitis. The hypophysis and the pancreas were normal and the lipid content of the cortex of the adrenals was decreased.

The examination of the thyroid showed a most extensive lymphocytic infiltration, with numerous nodules about disintegrating follicles. The epithelial cells of these follicles were swollen and desquamated and in places showed an increased affinity to the eosin stain. In other places the cytoplasm of the epithelial cells was finely vacuolated. The content of these vacuoles did not take the fat stains, but fine fat granules were occasionally present between the vacuoles. There were evidences of attempts at regeneration in the form of a few mitotic figures. There was practically no colloid filled follicle left. A few plasma cells and free histiocytes were scattered between the round cells. The infiltrations were surrounded by much dense connective tissue, which enclosed the residues of shrunken follicles. The wall of the arteries and arterioles was slightly thickened.

ADVANCED FIBROSIS OF THE THYROID GLAND

In the two cases of the group in which there was advanced fibrosis of the thyroid gland the thyroid had been replaced by a sclerotic connective tissue. There were sufficient evidences to indicate that this sclerosis was preceded by and had developed from a lymphocytic infiltration of the gland, which was similar to that previously described. Both patients were elderly women and neither one showed the symptoms of myxedema. Of the five cases of sclerosis of the thyroid gland described by Simmonds, only two showed a myxedema. In my two cases a marked anemia was the most outstanding symptom, suggesting a primary disease of the blood-forming organs.

CASE 2.—*History.*—A white woman, aged 55, of German descent, was extremely weak and was not able to give much information. From her daughter it was learned that one week prior to her admission to the Cook County Hospital she had left the State of Wisconsin General Hospital in Madison at her request. Dr. F. J. Pohle, resident physician of this hospital, kindly supplied a detailed account of her stay there, from which the following data are taken: The patient had entered the hospital four weeks prior to her discharge, stating that during the past five months she had noticed a progressing weakness, which became so severe that she was unable to walk without assistance. She had been subject to frequent colds and became dyspneic at the slightest exertion. She was very pale, and about the tibias and ankles a slight edema was found. The blood pressure was 110 systolic, 68 diastolic, and the liver and spleen were palpable. Examination of the blood showed a hemoglobin content of 35 per cent, an erythrocyte count of 1,170,000 and a leukocyte count of 1,250 cells. There were 22 per cent neutrophils, 4 per cent eosinophils, 68 per cent small lymphocytes and 4 per cent metamyelocytes. The platelet count was 60,000. This condition remained constant and, since liver medication had no effect, three blood transfusions were given. The hemoglobin content then rose to 60 per cent and the number of the erythrocytes increased to 3,180,000. The white count, however, remained around 1,200. The clinical diagnosis was subleukemic lymphadenosis. A sore throat developed and the temperature went up to 103 F. The patient insisted on returning to Chicago and was discharged.

At the Cook County Hospital the patient complained of weakness and difficulty in swallowing. Physical examination disclosed a diffuse consolidation of the left lower pulmonary lobe and a very marked anemia. There was a mild stomatitis and a slight cervical lymphadenopathy. The lower border of the liver could be felt but the spleen was not palpable. The temperature varied between 102 and 103.6 F. The hemoglobin content was 29 per cent, the red blood cell count 1,430,000 and the white blood cell count 1,850. The differential count showed 66 per cent monocytes, 7 per cent plasma cells, 14 per cent lymphocytes, 1 per cent irritation forms, 10 per cent segmented neutrophils and 2 per cent staff nucleated neutrophils. There was a moderate anisocytosis with single hyperchromatic and

polychromatic macrocytes. Platelets were practically absent. The clinical diagnosis was aplastic anemia. Three days after admission the patient died.

Autopsy.—The body weighed 62 Kg. and the body length was 160 cm. There was a lobar pneumonia in the stage of brown hepatization of the left lower pulmonary lobe. Petechial hemorrhages were found in the skin and in the mucosa of the renal pelvis and urinary bladder. In the left rectus abdominis muscle and in the retroperitoneal tissue large extravasations of blood were present. The heart weighed 450 Gm. and the leaflets of the aortic valve were slightly deformed. The intima of the aorta and coronary arteries was smooth. The liver weighed 1,825 Gm., the spleen 175 Gm. and the kidneys 475 Gm. The gallbladder contained a single cholesterol stone. The internal genitalia were atrophic and the ovaries showed small follicular cysts. The adrenals were very soft and their cortex was a light yellow. The thyroid weighed 22 Gm. It was of normal shape, felt very firm and consisted of light pinkish brown tissue (fig. 1). The brain could not be examined.

Microscopic Examination.—In place of the normal thyroid tissue there was a dense fibrillar connective tissue, which was loosely infiltrated by lymphocytes, plasma cells and histiocytes. In focal areas the lymphocytes accumulated to small nodules, in the region of which a delicate, argentaffine reticulum could be demonstrated. These nodules enclosed the residues of disintegrated follicles. The colloid had disappeared and the epithelial cells were swollen and finely vacuolated. Their nuclei were shrunken and crenated (fig. 2). In van Gieson stained sections, isolated groups of vacuolated epithelial cells could be seen between the coarse connective tissue fibers (fig. 3). There were small nests of polygonal cells with ample cytoplasm and vesicular nuclei, which were surrounded by a layer of argentaffine fibrils in the same manner as the follicles of the thyroid.[13] The wall of the arterioles and small arteries was slightly thickened, the intima of the larger arteries was moderately thickened and the internal elastic membrane was calcified.

The bone marrow was 17.8 per cent cellular and the cellular areas were composed of 52.2 per cent plasma cells, 38.3 per cent lymphocytes, 3 per cent monocytes, 4.3 per cent normoblasts, 1.1 per cent basophilic granulated cells, 0.4 per cent neutrophilic myelocytes, 0.4 per cent eosinophilic myelocytes and 0.3 per cent eosinophilic leukocytes. The plasma cells were large, and many of them contained from two to four nuclei. Similar to the bone marrow the lymph nodes and the spleen showed numerous large and often multinucleated plasma cells, and plasma cells could also be seen in the lumen of the portal sinusoids of the liver. There was much iron pigment in the spleen but none in the liver. The liver showed centrolobular, focal necrosis and a swelling and proliferation of the Kupffer cells. The alveolar exudate of the lung consisted of compact casts of fibrin with very few mononuclear cells. There were focal areas of necrosis, and the branches of the pulmonary artery leading to these areas of necrosis were occluded by fibrin thrombi. There was a slight increase of the interlobular fat tissue of the pancreas, and the islands were well preserved. The parathyroids contained the number of interstitial fat cells that corresponded to the age of the patient. Clear chief cells predominated. The lipid content of the adrenal cortex was much reduced and in the fascicular zone there were small nests of plasma cells, lymphocytes and iron filled histiocytes. The hypophysis could not be examined, since permission for removing the skull was not obtained.

CASE 3.—*History.*—A white American woman, aged 63, complained of extreme weakness, which had developed within the last six months. For the past month she had been eating very little because of a sore tongue. Recently she suffered from a severe diarrhea.

Examination.—On admission her temperature was 98.5 F., her blood pressure 78 systolic, 65 diastolic, the pulse rate 104 and the respiratory rate 16. The eyes were sunken, the tongue was coated, its edges were injected and there was also an injection of the mucosa of the soft palate and the pharynx. The neck, lungs and heart did not show any abnormalities. The Wassermann and Kahn tests of the blood gave negative results. The examination of the urine was negative, as was also the examination of the feces.

13. The metaplasia of the epithelium of the thyroid will be discussed in a separate paper.

Examination of the blood showed a hemoglobin content of 57 per cent. It decreased later to 48 per cent. The number of erythrocytes decreased from 2,980,000 to 2,580,000, and the number of the white cells varied between 5,750 and 10,500. There were from 71 to 81 per cent neutrophils, from 9 to 19 per cent lymphocytes, from 4 to 10 per cent monocytes and an occasional eosinophilic and basophilic leukocyte. There was a slight anisocytosis of the erythrocytes and a shifting of the neutrophils to the left. The platelet count was 200,000.

The patient was given a high vitamin diet and liver extract but she failed to respond. Because of her extreme weakness, no satisfactory determination of the basal metabolic rate could be made. The final diagnosis was anemia, probably of endocrine nature, most likely Simmonds' disease. She died six weeks after admission to the hospital.

Autopsy.—The body weight was 45 Kg. and the body length was 160 cm. In the skin of the neck and the dorsal aspect of the left forearm, single, up to 15 mm., confluent, dark purple red patches were seen. The right lung showed focal areas of consolidation. The heart weighed 285 Gm., the liver 1,230 Gm., the spleen 60 Gm. and the adrenals 12 Gm. The hypophysis measured 20 by 14 by 5 cm. The weight of the thyroid amounted to 9 Gm. The organ was of normal shape and of firm consistency and was made up of homogeneous pale gray tissue. There was a slight atheroma of the coronary arteries and a more marked atheroma of the abdominal aorta. The brain weighed 1,250 Gm.

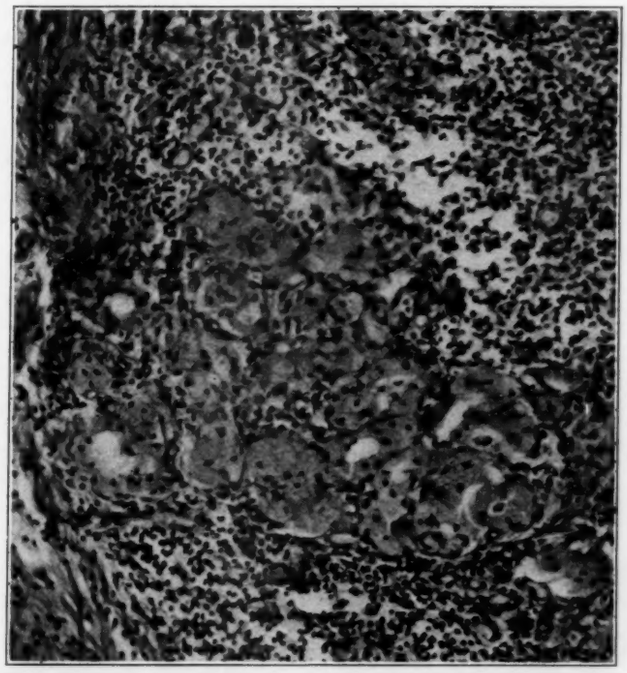

Fig. 2 (case 2).—Section of thyroid. Lymphocytic nodule containing the residue of a follicle, which is composed of finely vacuolated epithelial cells with crenated nuclei. (Paraffin section; hemalum-eosin; magnification 150 diameters.)

Microscopic Examination.—The thyroid resembled closely that of the preceding case. Again the diffuse, sclerosing fibrosis was the outstanding feature. Lymphocytic nodules and residues of follicles were less conspicuous than in case 2. There were small groups of squamous epithelial cells (fig. 4). In the anterior lobe of the hypophysis the oxyphilic cells predominated, and there were many small follicles filled with a colloid-like substance. The intermediary part consisted of several large, colloid-filled follicles. The posterior lobe, adjacent to the intermediary part, showed single, small nests of oxyphilic cells with eccentrically placed and deeply stained nuclei. The cortical cells of the adrenal contained much lipid material and there were small cortical adenomas, which were rich in fat. The parathyroids contained many fat cells and the clear chief cells predominated. The pineal gland consisted of islands of moderately sized cells with round or slightly indented nuclei. The ovaries were atrophic. The liver and the spleen showed a very marked hemosiderosis and in the pulp of the spleen there were

many plasma cells. The myocardium contained small recent hemorrhages. The bone marrow of the femur was 32 per cent cellular and showed 1.7 per cent myeloblasts, 51.6 per cent neutrophilic myelocytes, 2.6 per cent neutrophilic leukocytes, 0.5 per cent eosinophilic myelocytes, 1.5 per cent eosinophilic leukocytes, 0.7 per cent erythrogonias, 3.8 per cent erythroblasts, 33.3 per cent normoblasts, 0.5 per cent lymphocytes, 4.1 per cent plasma cells, 0.7 per cent monocytes and 0.4 per cent megakaryocytes.

COMMENT

Comparing the extensive lymphocytic infiltrations with the diffuse fibrosis of the thyroid gland, it becomes evident that the two conditions represent different stages of the same process and that the lymphocytic infiltrations terminate in the replacement of the parenchyma by a dense and sclerotic connective tissue. As far as the lymphocytic infiltrations are concerned, it appears to me that they are exaggerated forms of the interstitial nodular accumulations of lymphocytes which are so commonly found in exophthalmic goiters and in simple goiters and which are also occasionally observed

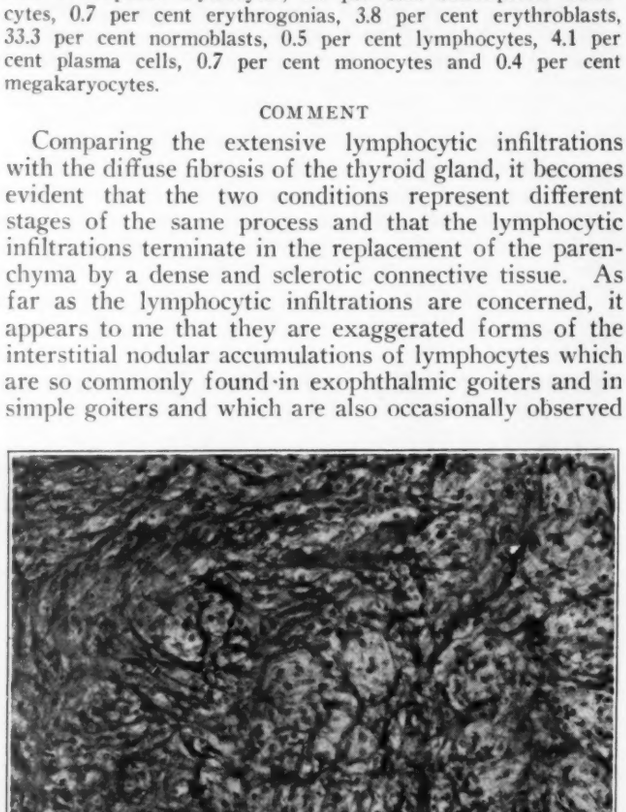

Fig. 3 (case 2).—Section of thyroid. Bundles of coarse connective tissue fibers enclosing degenerating epithelial cells. (Paraffin section; van Gieson stain; magnification 150 diameters.)

in normal thyroids, particularly in elderly and obese women (Simmonds,[14] Wegelin[12]). It is now generally assumed that the interstitial lymphocytic nodules result from the excessive resorption of the secretion products of the follicles or form about follicles that undergo degeneration or involution. They are secondary phenomena that can be linked to degeneration, involution, hypoplasia or functional disturbance of the gland (Wegelin,[12] Graham and McCullagh,[1] Williamson and Pearse,[15] Goormaghtigh,[16] Connor[17] and others). In the most pronounced cases they replace most of the parenchyma. Among the factors that may cause degeneration of the thyroid, infections have often been referred to; and, in the history of the cases presenting chronic thyroiditis, Riedel's goiter and Hashimoto's goiter infections, especially of the respiratory tract, have repeatedly been stressed. One of my patients with fibrosis of the thyroid had suffered from frequent colds. The case presenting the most extensive lymphocytic infiltrations of the thyroid showed a combination with syphilitic aortitis and meningo-encephalitis. Of the twenty cases of fibrous atrophy of the thyroid described by Simmonds,[18] four were associated with an old syphilis, and the observations of the Monods[19] and Küttner[20] seem to indicate that syphilis may be responsible for sclerosis of the thyroid. Roulet[21] describes an obliterating endophlebitis and endarteritis in Riedel's goiter which resembles the vascular changes observed in syphilis, but he does not consider them as indicating the syphilitic origin of the thyroid lesions. In my case the process in the thyroid did not carry the histologic earmarks of a syphilitic inflammation and did not differ from the changes in the other cases in which there were no evidences of syphilis. I believe that any infection may lead to nonspecific degenerative changes of the thyroid gland with a secondary lymphatic reaction and that those glands are predisposed to degeneration which are either hypoplastic or are the site of a pathologic or physiologic involution. It is this predisposing involution which may account for the fact that the disease under discussion affects mainly women after the menopause. In none of my cases were there any indications that the administration of iodine might be connected with the process.

Because of the intimate relations between the glands of internal secretion, one may expect that the grave alteration of the thyroid affects also the other endocrine glands. Histologically there were no evidences of involvement of the parathyroids, adrenals, hypophysis or pineal glands or of the islands of the pancreas in the cases in which all these glands could be examined. This observation confirms the statement that the lymphocytic infiltrations and fibrosis of the thyroid, which is often found in Addison's disease, particularly the type that is due to the cytotoxic atrophy of the suprarenal cortex, is not secondary to the destruction of the adrenal cortex but is a separate although probably coordinate process (Brenner,[22] Dubois,[23] Köhler,[24] Kreibig,[25] Saphir and Binswanger,[26] Schmidt,[27] Shaw and Smith,[11] Weller,[28] Wells[29]). In my material of autopsies of the last eight years there were eleven cases of Addison's disease, four of which showed a cytotoxic atrophy of the adrenal cortex and seven of which were due to a fibrocaseous tuberculosis of the adrenal. In

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15. Williamson, G. S., and Pearse, I. H.: The Pathological Classification of Goiter, J. Path. & Bact. **28:** 361 (April) 1925.
16. Goormaghtigh, N.: Phagocytosis in Toxic Goiter, Endocrinology **8:** 323 (May) 1924.
17. Connor, C. L.: Chronic Thyroiditis, Arch. Path. **10:** 161 (July) 1930.
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22. Brenner, O.: Addison's Disease with Atrophy of Cortex of Suprarenals, Quart. J. Med. **22:** 121 (Oct.) 1928.
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25. Kreibig, Wilhelm: Zur Kenntnis des thyreosuprarenalen Typus der pluriglandulären Erkrankungen (M. B. Schmidt), Frankfurt. Ztschr. f. Path. **36:** 668, 1928.
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27. Schmidt, M. B.: Atrophische Sklerose der Nebenniere und Thyroidea in Addisonscher Erkrankung, Verhandl. d. deutsch. path. Gesellsch. **21:** 212, 1926.
28. Weller, G. L., Jr.: Adrenal Insufficiency Resulting from Partial or Total Atrophy of the Adrenal Glands, Arch. Int. Med. **57:** 275 (Feb.) 1936.
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two cases of cytotoxic atrophy of the adrenal cortex the thyroid was densely infiltrated by lymphocytes, while in one the infiltrations were insignificant and in one case absent. Two cases of fibrocaseous tuberculosis of the adrenal showed much lymphocytic infiltration of the thyroid. In one case the infiltrations were of moderate intensity and in three cases of mild intensity, and in one case the thyroid was unchanged. In a Negro woman, aged 29, with Simmonds' disease, in whom the anterior lobe of the hypophysis had been completely replaced by scar tissue, the thyroid was atrophic, weighing 10 Gm., but was free from lymphocytic infiltrations. The adrenals weighed 6.5 Gm. and the inner layer of the fascicular zone and the reticular zone had been transformed into dense connective tissue. In another case in which the anterior lobe of the hypophysis had been destroyed by a fibrocaseous tubercle, thyroid and adrenals were unchanged. These cases indicate that the combination of pathologic changes of the glands of internal secretion does not follow any definite rule and that all possible combinations may occur. In polyglandular insufficiency the thyroid, however, is almost constantly involved and often seems to form the center of the symptom complex.

With regard to the marked anemia in the two cases of sclerosis of the thyroid gland, the question may be raised whether this anemia is related to the lesion of the thyroid or is coincidental. The influence of the thyroid on the bone marrow has been the subject of many clinical and experimental studies, of which I mention only some of the more recent ones. Schwanke [30] found that three fifths of his cases of exophthalmic goiter showed a polycythemia with erythrocyte counts between 5 and 8.6 million. Improvement was frequently followed by a drop in the number of the erythrocytes. Schermann [31] noticed an increased reticulocyte count among the population of the endemic goiter district of Mari (Russia). A series of papers deals with the anemia in myxedema (Emery,[32] Lerman and Means,[33] Stone,[34] Mackenzie,[35] Boros and Czoniczer [36] and others). Boros and Czoniczer [36] studied the blood picture in twelve cases of myxedema and found in five cases a macrocytic anemia and in one case a normocytic anemia. Lerman and Means [33] pointed out that anemia is more common in the patients with myxedema and gastric anacidity than in the patients with myxedema and free hydrochloric acid in the gastric juice. The combination of myxedema with true pernicious anemia has been described by Means, Lerman and Castle,[37] Giffin and Bowler,[38] Davis,[39] Boros and Czoniczer [36] and Holbøll.[40] In uncomplicated pernicious anemia the basal metabolic rate is increased, while it is lowered in the cases presenting pernicious anemia and myxedema. Mendershausen [41] has stressed that the thyroid of patients with pernicious anemia is often atrophic and infiltrated by lymphocytes, an observation which I have not been able to confirm. Heilmeyer and Albus [42] described a severe hemolytic anemia that developed from a myxedema anemia following grip and was complicated by acromegalic symptoms. The autopsy of this case revealed a complete atrophy of the thyroid. One of the cases of Riedel's goiter reported by Boyden and his associates [5] terminated fatally two years after the operation from pernicious anemia and cirrhosis of the liver. In a case of severe nonhemolytic anemia with hepatosplenomegaly and advanced sclerotic atrophy of the thyroid and positive serologic reaction for syphilis, Serio [43] is inclined to consider a simultaneous syphilitic alteration of the spleen, the liver, the thyroid and the blood-forming tissues.

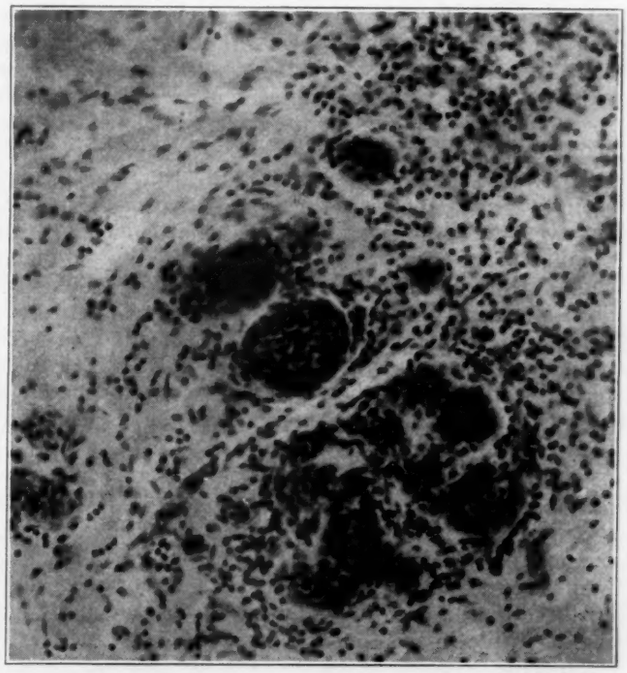

Fig. 4 (case 3).—Section of thyroid. Small nests of squamous epithelial cells surrounded by dense connective tissue and loose accumulations of round cells. (Frozen section; hematoxylin-eosin stain; magnification 150 diameters.)

Sharpe and Bisgard [44] and others have found that complete removal of the thyroid in young rabbits causes a moderate macrocytic anemia, which becomes fixed at a certain level and then remains constant. Kunde, Green and Burns [45] observed a macrocytic anemia in thyroidectomized rabbits. Latta and Benner [46] found that thyroxine injected into albino rats produced a rise in the percentage of the reticulocytes, which in some instances was later followed by a decrease. The bone marrow, in particular the erythropoietic tissue, was hyperplastic. After large amounts of thyroxine there were evidences of exhaustion of the bone marrow.

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31. Schermann, S. J.: Die Erythropoese der am endemischen Kropf des Marigebietes Erkranten, Virchows Arch. f. path. Anat. **287:** 363, 1933.
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No special attention has so far been paid to the blood changes in cases presenting Riedel's or Hashimoto's goiter. My three cases in which lymphocytic infiltrations of the thyroid was an incidental finding did not show any unusual changes of the blood. The case presenting myxedema showed a lowered hemoglobin content but the number of the red blood cells was normal. In one of the cases of advanced fibrotic atrophy of the thyroid a marked, slightly hypochromic anemia was present, which remained constant until the patient died. The bone marrow was active and there were no evidences of a disturbed differentiation or maturation of the cells of the bone marrow. The cause of the anemia is therefore difficult to determine from the anatomic changes. The presence of iron in the spleen and liver may be due to an excessive destruction of the erythrocytes or to the failure of utilizing the iron. In the other case of sclerosis of the thyroid the anemia was very severe and of the aplastic type and the histologic picture of the bone marrow fitted well with an aplastic anemia. This case also presented a lobar pneumonia, and the plasma-cellular-lymphocytic reaction of the bone marrow, spleen and lymph nodes can be attributed to the complicating infection.

It is, of course, not permissible to draw conclusions from two isolated observations. The two cases suggest, however, that in unexplained anemias of elderly women the possibility of a grave alteration of the thyroid gland should be taken into consideration even though the cases do not present manifestations of myxedema. Unfortunately, determinations of the basal metabolic rate were not made in my cases. Whether the anemia is directly related to the lack of the thyroid hormones or merely a part of the diminished vitality of all the tissues I do not venture to decide.

SUMMARY

Four cases of extensive lymphocytic infiltration of the thyroid gland, which closely resembles the histologic picture of Hashimoto's goiter, emphasize that this infiltration may not cause an enlargement of the gland. In three of the cases the infiltration was an incidental finding while in the fourth case it was associated with myxedema.

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ABSTRACT OF DISCUSSION

DR. LINDON SEED, Chicago: In view of the relation of anemia to myxedema, the medical department of the University of Illinois requested a total thyroidectomy in a patient with polycythemia vera. At present, nine months since thyroidectomy, she has a total myxedema. The blood volume, which was elevated, has been depressed, but the red blood count is the same as before operation. As time passes anemia may appear; for the present at least there has been little effect. There is a type of Riedel's struma that begins with soreness in the neck, slightly elevated temperature, leukocytosis and an elevated basal metabolic rate with its secondary manifestations. I have operated on three such patients and the microscopic picture was that of a typical woody thyroiditis with giant cells. In spite of the temperature elevation, tissue cultures were negative. In one patient there was an associated syphilitic aortitis, nephritis and hypertension. It was obvious that she would not live long. I did a biopsy on the right lobe and at autopsy three months later obtained the left lobe. To my surprise the left lobe showed good thyroid follicles and much less fibrosis. Apparently with passage of time the condition improved. In view of this it seemed to me that, unless there was obstructive dyspnea, one could leave the thyroid alone. In three successive cases I did so, and the patients recovered nicely. Unfortunately, however, the fourth one, who had what I thought was a Riedel's struma, went to another physician who did a biopsy and proved it to be an adenocarcinoma. Such a mistake is too easy to make and one is not justified in treating the condition without a biopsy.

DR. LEON ASHER, Berne, Switzerland: I should like to remark on the possible relationship between the thyroid gland and anemia. That there may be such a relationship can be definitely shown by physiologic methods. There is no doubt that the bone marrow is under the regulating influence of the thyroid gland. That can be tested with functional methods. For instance, regarding the behavior of leukocytes, if a normal animal is injected with 2 per cent of sodium salt of nucleic acid there will be an enormous increase of leukocytes, and a pathologist or anatomist will easily demonstrate an increased activity of the bone marrow. If the thyroid gland is removed, this reaction will not appear any more as long as one does not give senseless amounts of sodium nucleic acid. There are various experimental proofs that the bone marrow is under the regulatory influence of the thyroid gland as to red blood corpuscles and white corpuscles. Cases must always be analyzed. Why is there a special, more outspoken anemia in certain types of thyroid disease, a certain deficiency of the internal secretion? There may be something else besides. I have reference to the spleen with its inhibitory regulating influence on the bone marrow. There may be cases in which, in addition to the deficiency of the thyroid gland, there is added the inhibitory influence of the spleen, resulting in more pronounced diminution of the functional capacity of the bone marrow. If the spleen is removed, the function of the bone marrow returns. There is certainly a regulatory augmentory influence of the thyroid and bone marrow and an inhibitory one of the spleen. The real function of the thyroid is the regulation of permeability. One can show in animals and in human beings the decreased permeability of cells and blood vessels and the decreased interchange between blood vessels and cells, so that, if myxedema exists in certain cases, something else must enter besides. What that something else is, the physiologist cannot tell. That is the business especially of experimental pathologists and physicians. Let them find the reason why in certain cases there is myxedema and in certain cases not. I can only say that if one observes the patients in my country one will see in some most exquisite myxedema and in others none.

DR. ANTON J. CARLSON, Chicago: Complete thyroidectomy in the experimental animal leads to anemia. This is not new. The anemia comes on gradually. The difficulty of recognizing myxedema lies mainly in that we have in our mind's eye the picture of advanced myxedema, while neither in the laboratory nor in the clinic are there sufficiently delicate methods to determine the beginning stages, particularly in cases in which one does not follow the basal metabolic rate. Certainly in the rabbit, in which one can in most cases make a total thyroidectomy, there are a lowered basal rate, anemia, a lowered temperature, changes in the skin and interference with hair growth, all the characteristics that go with myxedema. But these develop gradually. I certainly could not recognize the initial stage at present. I have some respect for a Boston bean, particularly if it isn't baked, and if it contains thyroid tissue, because I have seen great hypertrophy or hyperplasia of thyroid remnants that were not even the size of a Boston bean or even of a mustard seed. Man is not so different from other mammals, in which there may be accessory thyroids from the base of the tongue to the base of the heart. Hence one can seldom be certain that total thyroidectomy has been achieved. I am intrigued by the report of the rejuvenating effect on women beyond 45 by taking out thyroids that are degenerated to start with. If the facts are as reported the thyroidectomy can have nothing to do with it. It must be the proximity of the surgeon.

DR. RICHARD H. JAFFÉ, Chicago: I am grateful to Dr. Carlson and Dr. Asher for discussing my paper. I enjoyed the witty remarks also. What I wanted to emphasize is the fact that hypofunction of the thyroid may present itself occasionally under the clinical picture of a severe blood dyscrasia. I am aware of the possibility that if in the cases which I described pathologically a hypofunction of the thyroid had been suspected clinically, other evidences of this hypofunction might have been detected. In these cases one may speak of a "masked myxedema." I hope that my presentation may have stimulated investigative work into the nature of the obscure anemias, especially those of elderly women.

Clinical Notes, Suggestions and New Instruments

BIO-ASSAY OF A PARATHYROID ADENOMA IN A CASE OF GENERALIZED OSTEITIS FIBROSA

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FRANCIS M. CLARKE, M.D., AND HENRY HAYWOOD, M.D.
NEW BRUNSWICK, N. J.

The evolution of the concept of hyperparathyroidism may be traced in successive stages from the original description of osteitis fibrosa cystica by von Recklinghausen [1] to its emergence as a disorder of function of the parathyroid glands, culminating in Mandl's [2] important observation that removal of a parathyroid adenoma resulted in marked immediate clinical improvement of the condition. The chain of evidence at present is almost complete that excessive secretion of parathyroid hormone by such an adenoma is to be regarded as the essential cause of the bony changes, hypercalcemia, and associated phenomena of this disease.[3] Reports in the available literature, however, contain no instances in which the actual hormone content of adenomas removed surgically has been determined.

Removal of a parathyroid adenoma in the following case permitted a biologic assay of its hormone content:

REPORT OF CASE

History.—A woman, aged 42, was admitted to St. Peter's Hospital, Oct. 25, 1935, for treatment of fractures of the humerus and femur. For at least six years she had had "rheumatic pains" in her limbs, polydipsia, polyuria and nocturia. Four months before admission, while pushing a trunk, she fell and injured her hip. Roentgen examination on the day of admission to the hospital showed evidence of advanced cystic disease and osteoporosis of the bones with fractures of the humerus and femur (fig. 1). The diagnosis of hyperparathyroidism was made by the roentgenologist, Dr. William Klein. The blood serum calcium was 12.3 mg. per hundred cubic centimeters, phosphorus 2.8 mg., and the phosphatase was elevated to 39.4 King-Armstrong units. Urinalysis revealed calcium phosphate and triple phosphate sediments, slight albuminuria, occasional leukocytes, and fixation of the specific gravity between 1.010 and 1.012. Blood urea nitrogen was 21.5 mg. per hundred cubic centimeters, and the phenolsulfonphthalein excretion in the urine only 12 to 17 per cent in two hours. The hemoglobin was 44 per cent (Dare) and erythrocytes 3,540,000, with hypochromia and slight basophilic stippling. Fractional gastric analysis (Rehfuss) revealed complete absence of free hydrochloric acid and a total acidity of 30. Immobilization and moderate traction were applied for the fractures (Dr. Haywood). Two weeks after admission the patient was operated on for suspected parathyroid adenoma.

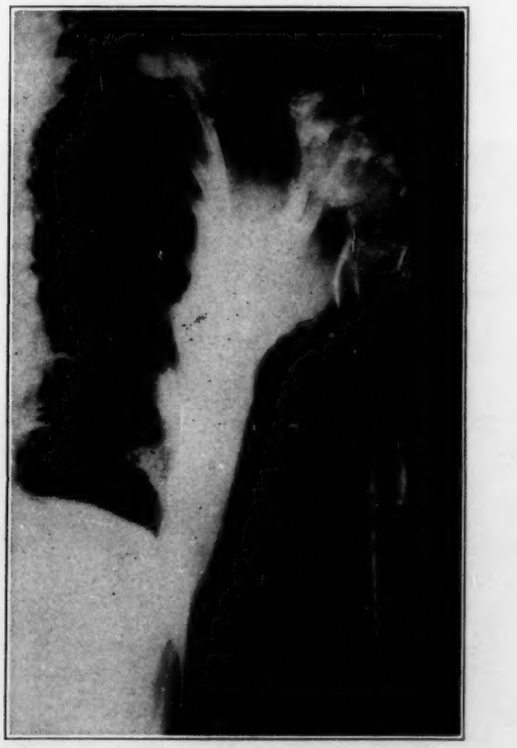

Fig. 1.—Marked osteoporosis and fibrocystic changes in humerus with fractures.

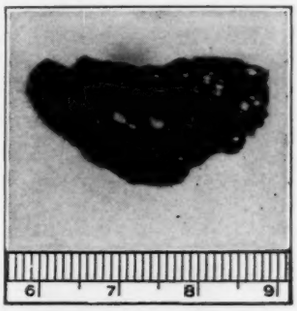

Fig. 2.—Parathyroid adenoma immediately after surgical removal (natural size).

Operation (Dr. Clarke).—Under tribrom-ethanol anesthesia with procaine hydrochloride infiltration the thyroid was exposed; two normal parathyroids were identified on the right side. A large, yellowish, encapsulated body, the size of a small olive, was found without difficulty lying flush with the anterior surface of the lower pole of the left lobe of the thyroid within a common sheath. The mass was easily liberated from a smooth fibrous bed within the thyroid gland. A frozen section was reported "parathyroid adenoma."

Description of the Specimen.—The gland tissue removed at operation weighed 2.6 Gm. It formed a single mass with slight lobulation (fig. 2). The cut surface was uniform and solid, without visible finer structure or obvious fibrosis or cyst formation, light amber in color, and having a soaplike homogeneity of aspect. Part of the gland was reserved for histologic study and the remainder, weighing 1.6 Gm., was placed on ice for twenty-four hours. It was then chopped fine and transferred to acetone and sent to Dr. J. A. Morrell of the Biological Laboratories of E. R. Squibb & Sons, through whose kindness the assay for hormone was effected.

Microscopic Examination.—The cells of the gland were arranged compactly in curving rows and rounded nests, often forming small acini (fig. 3). A few acini possessed a small round or oval clear lumen. The individual cell groups and acini were separated by a delicate stroma of exceedingly narrow connective tissue fibrils with wide or narrow capillary vessels. The uniformly solid glandular appearance of the tissue was interrupted in a few places by venous sinuses and a few coarser fibrous trabeculae from which the finer network arose. Nearly all the cells were of one type corresponding to the transitional oxyphil cell.[4] The cell borders were usually distinct and clearly defined the shape of the cells as rounded, cuboidal or polygonal, varying considerably in size. Often the cell boundaries were indistinct. The cytoplasm was finely granular and compact, and stained a faint pink with hematoxylin and eosin. The nuclei were generally rounded with a tendency to polygonal shape, and ranged in size from 7 to 12 microns or even larger. The larger nuclei showed dense chromatin masses, the smaller nuclei a more evenly distributed lighter chromatin with tiny nucleoli. No mitoses were seen. A few groups of cells occurred the cytoplasm of which had been largely replaced by large clear spaces in which the nuclei appeared as if suspended (wasserhelle, or clear principal cells).

The diagnosis was transitional oxyphil cell adenoma.

Results of Bio-Assay (Dr. J. A. Morrell).—Defatting and desiccation of the tissue were completed by the use of acetone and the residue was then completely dried. The dried glandular material was then heated with 3 per cent hydrochloric acid

From the laboratories and surgical service of the St. Peter's General Hospital, New Brunswick, N. J.

1. von Recklinghausen, F. D.: Festschrift Rudolf Virchow zu seinem 71 Geburtstage, Berlin, G. Reiner, 1891.

2. Mandl, F.: Arch. f. klin. Chir. **143**: 245, 1926; Zentralbl. f. Chir. **56**: 173, 1929.

3. An excellent general review of the literature is given by Jaffe, H. L.: Hyperparathyroidism (Recklinghausen's Disease of Bone), Arch. Path. **16**: 63 (July), 236 (Aug.) 1933.

4. Morgan, J. R. E.: The Parathyroid Glands: I. A Study of the Normal Gland, Arch. Path. **21**: 10 (Jan.) 1936. Warren, Shields, and Morgan, J. R. E.: The Parathyroid Glands: II. A Histologic Study of Parathyroid Adenoma, ibid. **20**: 823 (Dec.) 1935.

in a boiling water bath, filtered, and the whole amount injected into a dog that had been previously standardized with regard to its sensitivity.

The material produced an increase of 2.84 mg. per hundred cubic centimeters of blood calcium, whereas, in the same animal, 300 units of parathyroid extract obtained from normal beef parathyroid glands treated in the same way had previously produced an increase of 5.04 mg. per hundred cubic centimeters of blood calcium. This material was equivalent, therefore, to approximately 169 units (Hanson) of parathyroid extract. On this basis, the entire adenoma contained approximately 275 units, or slightly more than 105 units per gram. This is about

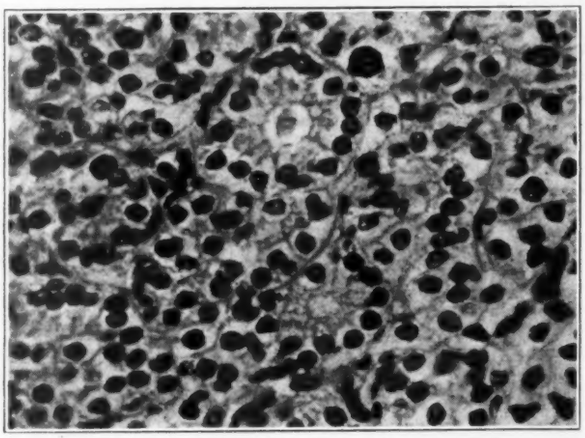

Fig. 3.—Cell arrangement and sparseness of stroma of parathyroid adenoma.

twice the amount of parathyroid hormone per gram obtained from normal beef parathyroid gland.

Postoperative Course of the Patient.—Two hours after operation and twice daily subsequently the patient was given 20 cc. of 10 per cent calcium gluconate solution intravenously and 1 cc. of parathyroid extract [5] hypodermically. Her serum calcium nevertheless dropped from a preoperative level of 11.2 mg. to 9 mg. per hundred cubic centimeters in twenty-four hours and reached 7.9 mg. on the third postoperative day. There were no obvious signs of tetany. On a low phosphorus diet [6] with added viosterol (30 drops daily) and calcium gluconate tablets (276 grains [18 Gm.] daily) orally her serum calcium level gradually rose and reached 10.3 mg. per hundred cubic centimeters exactly one month after operation. She felt stronger and brighter daily and ate with unusually good appetite. Her anemia responded to iron and liver therapy with addition of hydrochloric acid. Renal function improved, and the blood urea nitrogen fell to 16.0 mg. per hundred cubic centimeters with rising urinary output. Roentgen examination of the abdomen showed no evidence of calcareous deposits in the region of the kidneys. One month after operation it was possible to discontinue parathyroid injections. Three months after operation she was discharged in good condition. When seen at home (March 21, 1936) she was no longer wearing a cast, her muscle function was improved, and she was walking about her room. Her anemia was much less (hemoglobin 75 per cent, erythrocytes 3,820,000), and on a normal diet which included one quart of milk daily her serum calcium was 9.7 mg. per hundred cubic centimeters and phosphorus 3.4 mg. per hundred cubic centimeters. July 7, 1936 (eight months after parathyroidectomy) her blood serum calcium was 10.1 mg. per hundred cubic centimeters and the serum phosphatase had become normal (12 units).

SUMMARY

In a typical case of hyperparathyroidism marked clinical improvement resulted from surgical excision of an adenoma of the left lower parathyroid gland. Bio-assay of the gland revealed approximately 105 units of hormone per gram. Search of the literature reveals no previous instance in which direct analysis was made of the hormone content of such an adenoma.

5. Parathyroid extract-Squibb. One unit (Hanson) is defined as one-one hundredth of the amount of extract required to cause an increase of 1 mg. of calcium per hundred cubic centimeters of blood serum in dogs weighing from 10 to 12 Kg., the increase being determined after subcutaneous administration to dogs of a sufficient quantity of solution to cause an average increase in blood serum calcium of from 4 to 6 mg. within sixteen hours. One cubic centimeter contains 100 units.

6. Shelling, D. H., and Goodman, M. J.: Calcium and Phosphorus Studies: IX. The Importance of Low Dietary Phosphorus in the Treatment of Parathyroid Tetany, J. A. M. A. **102**: 669 (March 3) 1934.

PIGMENTATION OF THE SKIN DUE TO IRON (COPPERAS) APPLIED LOCALLY

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There are several cases on record of pigmentation following the local application of iron-containing medicinal substances. One may well take warning from these that the use of certain agents is liable to be followed by discoloration, which may be permanent.

REPORT OF CASE

Miss G. H., a robust woman, aged 33, with blue eyes, dark hair and brunette skin of fine texture, contracted impetigo, which commenced with "blisters" on her neck, June 13, 1936. For five days she applied tincture of iodine several times a day, without benefit. Then, at the suggestion of a neighbor, she made up a strong solution of copperas, which is ferrous sulfate, $FeSO_4.7H_2O$, a translucent, greenish crystalline substance known also as green vitriol. She did not measure the strength, simply dissolving several teaspoonfuls in a glass of water. She applied the solution by "dabbing it on several times a day for two or three days." The condition became worse and pained her severely. She then used magnesium sulfate solution for a short time, without benefit. June 23 she was seen at the dispensary of the University of Kansas Hospital, where a saturated solution of lead acetate was prescribed. On applying this, she said her face burned violently and felt "cooked," and the lesions became darker and redder. Then 10 per cent ammoniated mercurial ointment was prescribed, and on June 30 notable improvement was observed along with a red-brown pigmentation of the lesions. It was surmised this would go away, but it did not do so. August 11 she returned to the

Brown pigmentation at the sites of healed lesions of impetigo. This discoloration is due to the use of a copperas solution (ferrous sulfate) followed by lead acetate solution, with the resulting staining of the dermis with basic ferric acetate.

dispensary to learn whether or not something might be done to hasten the disappearance of the discoloration. A 2 per cent solution of salicylic acid in 30 per cent alcohol was given her but yielded no effectual results. Then the area was blistered with ultraviolet rays, with no greater benefit.

I obtained this information from the patient and from the records September 30, at which time she presented the striking appearance that the illustration shows. From a distance one would jump to the conclusion that she had impetigo, but the

skin was entirely free from inflammation and had been so for six weeks. The lesions were macular, without any change in texture whatever, and entirely without symptoms excepting unsightliness. The pigment appeared to be superficially located but was not in the epidermis, as was proved by the therapeutic failure of ultraviolet irradiation in blistering dosage. The red-brown sepia was deeper at the periphery of the circular, annular and crescentic lesions that were formerly impetiginous. The shading reduplicated the appearance of active impetigo.

There had occurred, she said, some slight paling of the lesions during the time they had existed. It was judged unwise to attempt their removal by various means of irritation, and, *faute de mieux*, a cosmetic preparation was prescribed, to the considerable satisfaction of the patient.

COMMENT

The pigmentation is understood with the following chemical explanation, for which I am in part indebted to Miss Elizabeth Bachman. Ferrous sulfate is a powerful astringent. Applied to the oozing impetiginous lesions, the iron attached itself to the superficial connective tissue of the dermis. Ferrous valence was soon oxidized to ferric. The tissue fluid maintained a faintly alkaline state. Lead acetate was applied, with the production of insoluble basic ferric acetate, which possesses the exact red-brown color that the patient presented.

Basic ferric acetate is used commercially for the purpose of dyeing silk, wool and other materials this particular color. The patient's dermis could not have been more satisfactorily stained by a professional industrial chemist. How long the pigmentation will persist is in doubt. It has faded a little, and, since iron is susceptible of being utilized in the body, it may be eventually absorbed. An effort to peel away the marks is futile. They might be removed by shaving off the superficial layers of the corium, as Dubreuilh[1] has done in order to eradicate tattooing, but the likelihood of scarring is great.

Pigmentation due to iron, such as is reported here, has been recorded by Pusey,[2] who observed permanent punctate staining of the skin following the application of a copperas solution prescribed for the relief of an oozing dermatitis. Lead acetate solution had been used before the copperas. Pusey's histologic investigation revealed that the iron was distributed in amorphous granules, which, unstained, were light brown and reacted with potassium ferricyanide to form deep blue grains. These were unevenly scattered in collections of variable size between the connective tissue fibers in the subpapillary layer of the corium and were separated from the superimposed normal-appearing epidermis by an unstained but thin connective tissue zone. They were both intracellular and extracellular. Some fibers seemed to have been converted into granules. Pusey attributed the pigmentation to iron hydroxide.

Traub and Tennen[3] recorded two cases of similar staining due to a ferric chloride solution used to treat dermatitis from poison ivy. They reviewed the literature with regard to the use of iron salts for the condition, a form of therapy which, introduced by McNair[4] in 1921, has been of considerable popularity. "Many have attested the usefulness, harmlessness and efficacy of preparations of iron salts in both the treatment and the prophylaxis of rhus poisoning." They list articles over a decade from various journals; yet only half a dozen or so cases of permanent pigmentation have been recorded.

The inference is evident that there is more involved than the mere application of ferrous sulfate or ferric chloride to the denuded skin if pigmentation is to be produced.

The explanation lies, I believe, in that it is the acetate of iron which dyes the dermis. Unless the iron is applied while or before an acetate is present, it is harmless. Certainly more cases of pigmentation would have been observed if iron salts alone were responsible. It is not unusual that lead acetate or aluminum acetate is employed to alleviate a moist dermatitis such as ivy causes. It is true that iron salts in the presence of acetate stain various materials such as silk, a protein from a chemical standpoint not greatly unlike the collagenous tissue of the skin. The case which I report stands in evidence that iron did not cause pigmentation until acetate was applied. It is a reasonable presumption that the rare cases of iron pigmentation are due to the coincidental use of the other agent.

Traub and Tennen did not state that acetate had been used previous to the application of iron in either of their patients, but they did not state that it had not. Their patient had been treated with calamine lotion, a weakly alkaline mixture containing zinc carbonate. Perhaps other agents than acetate will likewise enable iron to fix itself permanently to the protein molecule. Iron-containing lotions must not be prescribed when acetate is also being used; and acetate lotions must be scrupulously avoided if iron has been used.

SUMMARY

Permanent reddish brown pigmentation of the skin at the sites of lesions of impetigo was caused by the use of a solution of copperas (ferrous sulfate) followed by the application of a solution of lead acetate.

Pigmentation in this case is due to the dyeing of the corium with basic ferric acetate.

Iron solutions are commonly used to treat oozing dermatoses without resultant discoloration. Ferric acetate is used commercially to dye silk and other materials the reddish brown seen in this and similar cases, which are rare. It is probable that the rare cases of pigmentation following the use of iron solutions are cases in which acetate has been used coincidentally.

Such pigmentation when it occurs cannot be removed by peeling or irritative therapeutic measures, for the iron deposits are not in the epidermis. It can be removed only by procedures that are likely to scar. With certain cosmetic preparations, it can be hidden successfully.

1308 Bryant Building.

1. Dubreuilh: De tatouage par décortication (un nouveau procédé), Ann. de dermat. et de syph. **10**: 367, 1909.
2. Pusey, W. A.: Brown Stains in the Skin From Wet Dressings of a Solution of Copperas, J. A. M. A. **68**: 627 (Feb. 24) 1917.
3. Traub, E. F., and Tennen, J. S.: Permanent Pigmentation Following Application of Iron Salts for the Treatment of Ivy Poisoning, J. A. M. A. **106**: 1711 (May 16) 1936.
4. McNair, J. B.: A Contribution to the Chemotherapy of Rhus Dermatitis and Tentative Method for Treatment, Arch. Dermat. & Syph. **3**: 802 (June) 1921.

Special Article

PRACTICAL CLINICAL PHOTOGRAPHY

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The scientific and medicolegal advantages of photographic case records are apparent to most physicians, although relatively few physicians take the opportunity of utilizing their clinical material for photographic purposes. There is scarcely a specialty or branch of experimental and clinical medicine and surgery which cannot be enriched by photography. Dermatologic lesions, neoplasms, developmental and nutritive disorders, deformities, neurologic disturbances, fractures, dislocations, burns, inflammations and a host of other conditions lend themselves readily to photographic recording. The photography of surgical instruments, appliances and special apparatus, the recording of operative procedures, the reproduction of gross and microscopic necropsy and biopsy specimens, blood, parasitologic and bacteriologic specimens, the copying of charts, records and roentgenograms and the making of lantern slides and transparencies for teaching purposes are other accomplishments that the camera makes possible.

The Biological Photographic Association, organized for the purpose of fostering cooperation between the professional photographer and the private physician in the interest of better methods and results, has done much toward raising the standards of medical photography. An increasing number of physicians consequently are availing themselves of the services of professional photographers, and progressive institutions are developing well equipped photographic departments.

There are nevertheless a great many institutions that have no photographic facilities, and here the physician is thrown on his own resources whenever photographic recording is necessary. Furthermore, in his private practice the practitioner may find it expedient to photograph his own material, especially when much photography is to be done or when transitory pathologic conditions make an immediate photograph necessary.

Some mention has been made in medical literature of the possibilities of clinical photography,[1] but for the most part the literature on medical photography is addressed largely to those who are already acquainted with the fundamentals of photographic technic. This fact has undoubtedly contributed to the prevailing misconceptions that the technic of medical photography is difficult and the necessary apparatus inordinately expensive. The rise of the miniature camera, too, has created the attitude among many practitioners that less expensive cameras are useless so far as clinical photography is concerned. Yet perfectly satisfactory work may be done with inexpensive cameras, and many physicians who possess folding roll film cameras are able with the addition of a few bits of supplementary apparatus to obtain splendid results in all branches of macrophotography, photomicrography, the photography of necropsy and biopsy specimens, copying work, enlarging, and even color and infra-red photography. The present article deals with the practical aspects of clinical photography and outlines a minimum of apparatus necessary for work in the various fields. Only such photographic theory has been introduced as is absolutely essential to an understanding of practical principles.

THE CHOICE OF A CAMERA

Plate and Film Pack Folding Cameras.—The most satisfactory camera for clinical use is a folding plate and film pack camera equipped with a double extension bellows and a ground glass back. The wide variety of photographic emulsions available in plates, cut films and film packs satisfies all requirements of latitude, speed, contrast, fineness of grain and color sensitivity. The double extension bellows permits the full-scale copying of charts, pictures and diagrams and is useful in photomicrography. The ground glass back allows critical focusing. The camera furthermore may be used as the principal part of an enlarging or projecting apparatus. The most satisfactory picture size is either 2¼ by 3¼ inches or 3¼ by 4¼ inches, from which a suitable contact print may be obtained if an enlargement is not desired.

Reflex Cameras.—The chief advantage of reflex cameras is that the focus can be adjusted up to the instant of exposure. This advantage is offset by the bulk and cost of the camera. For clinical purposes the focal plane shutter with which the reflex cameras are equipped is not as suitable as the ordinary "between-the-lens" shutter, since the slower speeds, from one-fifth second to 1 second, cannot be obtained. Folding patterns of the reflex camera have been devised, but these are somewhat more difficult to manipulate than the box reflex type. Double lens reflex cameras overcome the ordinary disadvantages of the reflex camera, being compact and allowing the slower speeds, but are rather costly and there is some error in parallax on extreme closeups.

Miniature Cameras.—Although considered a toy by many photographers, the miniature camera is rapidly gaining in popularity and promises to become the universal camera of the future. Precision instruments, such as the Leica and Contax, are supplied with fine optical equipment and combine sturdiness of construction, compactness, speed, and ease of operation. The film used is a fine grain cine-negative film of standard 35 mm. width, from which enlargements of many diameters may be obtained. The small size and light weight of the camera permit it to be carried in a coat pocket, and the high speed lens equipment allows satisfactory exposures under unfavorable light conditions. The relative inexpensiveness of movie film is another factor to be considered, especially when many pictures are to be taken or when color photographs are desired. Furthermore, positive film transparencies may be made for projection purposes at a great saving as compared to the cost of lantern slides. There are, however, several disadvantages associated with the miniature camera. The price of a precision camera with the highest speed lens amounts to several hundred dollars, but this initial price is tremendously augmented by the cost of supplementary apparatus, such as equipment for copying, enlarging and microscopic work, without which satisfactory clinical photography cannot be done. Miniature films require more meticulous handling than larger films, the slightest errors in processing rendering good enlargements impossible. Another objection is that contact prints are too small for detail to be readily seen; consequently all pictures must be enlarged, a fact that destroys the operating economy. The average spool of film used contains thirty-six exposures and this is another serious drawback, since it is necessary to expose the entire roll before any single desired negative can be obtained. Miniature roll film cameras that take sixteen pictures on ordinary vest pocket roll film are less expensive but lack some of the important features of the precision instruments.

Roll Film Cameras.—With the wide range of emulsions available in roll film, perfectly satisfactory results in clinical photography may be achieved by employing a good roll film camera. Two essentials are necessary: first, a reliable anastigmatic lens; second, a shutter with slow speeds of one-fifth to 1 second. Supplementary portrait and copying lenses will substitute satisfactorily for the double extension bellows, and reasonably sharp focus may be obtained by measuring by rule the distance between the subject and the camera. Photomicrographic work may be accomplished with ease, and the camera may be used for enlarging or projecting purposes. There are many good inexpensive roll film cameras with these features available.

Lenses.—Standard cameras are usually equipped with reliable anastigmatic lenses corrected for astigmatism, chromatism and spherical aberration. The quality of a lens is difficult to estimate without actual trial, but a lens manufactured by a reputable maker will ordinarily prove satisfactory. Cooke, Zeiss, Ilex, Schneider, Leitz, Goerz, Voigtländer, Bausch and Lomb, and Meyer lenses rank among the best. For pleasing perspective the focal length of the lens should be equal to or greater than the diagonal of the film or plate. The speed of the lens depends, of course, on the maximum aperture, and rarely, except in the miniature cameras, is it advisable to purchase a lens with a speed greater than f/3.5, faster lenses for larger cameras being bulky, expensive, and providing very small depth of

1. Goodman, Herman: Medical Photography, M. J. & Rec. **127**: 76-78 (Jan.) 1928. Poser, M.: Some Problems in Biological Photography, J. Biol. Photograph. A. **1**: 61-71 (Dec.) 1932.

field at full aperture. A slower lens, such as f/4.5, is entirely adequate, since it is usually used at an aperture of from f/8 to f/32 in order to provide sufficient depth of field to insure the entire area of interest being sharply in focus.[2]

Shutters.—Since high-speed work is rarely necessary in clinical photography, focal plane shutters offer no distinct advantages. As has been previously mentioned, speeds of one-tenth, one-fifth, one-half and one second are often required; therefore diaphragm or "between-the-lens" shutters, such as Compur, Ilex, Wollensak and Optimo shutters, are preferable.

ACCESSORY EQUIPMENT

A tripod, preferably with a tilting top, on which to set the camera is a very useful accessory. A folding metal tripod is portable and may be purchased inexpensively. A good addition to a tripod, if the tripod has no tilting top and the camera is not too heavy, is an Eastman Optipod, a ball-and-socket swivel arrangement, which may be attached to the tripod and allows the tilting of the camera in any direction. A lens shade will prove itself a boon in preventing glare from the reflections of light on the ceiling, walls and floor. Necessary equipment for developing and printing film and paper is discussed under the heading "Photographic Processes," and essential illuminants are outlined under "The Photography of the Patient by Visible Light."

Optional equipment includes filters for contrast and color correction, such as Wratten A, B, C, K_2, G, X_1 and X_2 filters, an enlarger or device to convert one's camera into an enlarger, a source of light for photomicrography, an exposure meter, and special apparatus for gastric, ophthalmoscopic, rectal and cystoscopic photography.

PHOTOGRAPHIC PROCESSES

The Darkroom.—While developing and printing may be relegated to a reliable photofinisher, most physicians will probably get better results by processing their own films. A photographic darkroom is, of course, a necessity. If one does not possess an x-ray darkroom, a closet or small empty room may easily be converted into a darkroom by adding a sink and a few tables and shelves. The windows must be made lightproof unless work is to be confined to nighttime. A small electric fan will help ventilation considerably. The ordinary x-ray safelight will be unsuitable for most of the negative materials used and therefore it will be necessary to procure one or more safelights according to the type of materials handled. A dark red safelight, such as a Wratten Series 2 Safelight, will be found a convenience in working with orthochromatic materials, and, if a light must be used in developing panchromatic emulsions, a deep green light, such as the Wratten Series 3 Safelight, is recommended. An orange electric safelight or Wratten Series O Safelight is a necessity for use with bromide papers, developing-out papers and lantern slides.

Developing.—Films and plates may be developed by the tray or tank method. For tray development three glass, enameled or hard rubber trays for the developing solution, acid short-stop, and fixing reagent are required. Tank development is much preferred because of the more even development and lessened handling of the film. For packs or cut films rectangular hard-rubber tanks are most suitable, and for roll films cylindric or rectangular tanks may be used. Tray development will give excellent results provided development is carried out in the dark or with the proper safelight. A clock that ticks off quarter or half seconds is a convenience in timing development of paper or film, and a thermometer will be found necessary to measure the temperature of solutions.

There is a wide latitude in the choice of developing solutions. Development for eight minutes in ordinary x-ray developer will yield fairly good negatives. Developer is conveniently dispensed in small glass tubes known as M. Q. tubes, which may be used not only for developing films and plates but also for bromide and developing-out papers. Eastman Film and Plate Developer in tube form and Eastman Universal Developer are both excellent formulas. If one wishes to be scientifically exact, the best formulas are those recommended by the manufacturer for a particular emulsion used. For a small investment one may procure a set of scales and all necessary chemicals to compound formulas.

A good all-round developer for films and plates is the Eastman D-61a formula.[3] A developer yielding fairly strong contrast in supersensitive panchromatic emulsions and Panatomic film is D-72, which may be compounded[3] or purchased from photographic supply houses ready to mix with water to give 1 quart, 2 quarts or 1 gallon of solution.

Fine grain developers will be necessary for miniature films or other fine grain films whenever great enlargements are contemplated. Since fine grain is dependent mostly on the character of the emulsion and only to a limited extent on the developer, it is essential to use a fine grain emulsion. Full exposure, slight underdevelopment employing a slow acting developer to minimize the clumping of silver particles, and rapid drying of the film will insure the best results. There are many fine grain developers on the market, among which the D-76 developer[3] is very popular. This developer may be compounded or obtained ready to mix with water and will give splendid results in most cases. Some ultra fine grain developers contain paraphenylenediamine, a powerful poison, and require approximately double exposures and development. The Eastman Kodak Company has recently marketed an ultra fine grain developer which is nonpoisonous and faster acting than paraphenylenediamine.[4]

Fixing.—The use of an intermediate acetic acid bath helps prevent staining and prolongs the life of the fixing bath. The following bath should be made up fresh: water, 32 ounces; acetic acid 28 per cent, 1½ ounces.

The negative is next transferred to an acid-hypo fixing solution at 65 F. and allowed to remain approximately twenty minutes, or ten minutes longer than it takes for the white color of the emulsion to disappear. The fixing bath need not be prepared fresh and may be used over and over again until the action slows up and more than from five to seven minutes is necessary for the negative to clear. White light may be turned on in the darkroom after the film has been in the fixing solution for approximately two minutes. Acid hypo may be purchased as a prepared powder to make up the fixing solution, or the solution may be compounded from formula.[3]

2. The Eastman Clinical Camera is fitted with an f/7.7 anastigmatic lens.

3. Eastman processing formulas are published in the booklet "Eastman Professional Films," which may be obtained on application to the Eastman Kodak Company, Rochester, N. Y.

4. Vittum, P. W., and Crabtree, J. I.: A New Fine Grain Developer. Camera Craft 42: 587-597 (Dec.) 1935.

Washing and Drying.—Washing should be carried out for approximately one hour in running water to remove all traces of hypo. The films should be moved about freely, but excessive handling must be avoided to prevent scratching the emulsion. On being removed from the washing tank, the film is wiped with a damp chamois or damp cotton to remove excess water and then is hung up to dry. An electric fan will promote rapid drying.

Reducing and Intensifying.—In instances of incorrect exposure or development, negatives may be either too dense or too thin to print well. Such negatives may sometimes be salvaged by the use of reducing and intensifying solutions. Heavy overexposed negatives are best treated by Farmer's reducer,[3] which is a cutting reducer tending to increase contrast. For overdeveloped negatives a permanganate proportional reducer [3] which lowers contrast should be used.

Intensifying solutions [3] will increase the printing density of thin, flat negatives, but markedly underexposed negatives that have little detail will not benefit much by intensification.

Printing.—The materials needed for making contact prints are few and consist of a printing frame, rubber squeegee, developing-out paper, a few enameled ferrotype tins, and a suitable safelight. To give the best rendering of fine detail, a paper with a glossy surface such as Glossy Velox or Azo is recommended. It is available in six degrees of contrast to compensate the variation in the printing quality of negatives. The negative is placed in the printing frame emulsion side upward, and the paper is placed on the negative emulsion side downward. The back of the frame is replaced and the paper is exposed to white electric light. The exposure time required depends on the density of the negative, the contrast of the paper and the intensity of white light. A 25 watt or 40 watt bulb may be used as a light source and a few trials will indicate the correct exposure. M. Q. tube developer solution or D-72 developer [3] will be found satisfactory. The acid short-stop bath and fixing bath are identical to those used for negatives. Following a wash of one hour in running water, the prints are squeegeed face downward on the ferrotype tins, which have been prepared by polishing with a glazing polish. A good polish may be made by dissolving a small amount of paraffin in benzene.

Positive Film Transparencies.—For exhibition purposes, photographs may be printed on Eastman Process Safety Film, the film being used in the same manner as developing-out paper. Exposure and development are carried out the same as for paper. The positive prints may be framed in cardboard mounts and a piece of Eastman Acetate Sheeting or cellophane may be placed over the emulsion side of the print in order to protect it. The detail apparent in positive prints is splendid when viewed through an illuminator. Reversible movie film may be obtained for use in miniature cameras, the negative being converted directly into positive prints for projection purposes. A better method, however, is to employ the regular negatives and print them on positive movie film in order to preserve the negative in case other positive photographs are desired.

Retouching.—Being accurate scientific records, negatives obviously cannot be retouched. It is permissible, however, to block out backgrounds and extraneous subjects with an opaque substance such as Eastman Opaque. Numbers and indications may be drawn on the negative with the opaque material, and in the final print or enlargement these will show up as white marks.

Enlarging.—Briefly stated, the process of enlarging consists of placing a negative between a concentrated source of light and a lens, and focusing the image on a piece of bromide paper, which is processed in the usual manner. Enlarging machines may be purchased in vertical types, which focus on a table, or in horizontal types, which utilize an upright screen for focusing purposes. Enlarging is facilitated in vertical machines, but enlargements of more than six to ten diameters are more difficult to obtain than in horizontal enlargers.

With a little ingenuity any camera equipped with a good anastigmatic lens and removable back may be adapted for an enlarger. A light-proof box, from 8 to 12 inches square, is painted white on the inside, and to one wall there is attached a socket to hold a Photoflood bulb. An opening is cut in the opposite wall somewhat larger than the size of the negative to be used. A piece of opal glass, to serve as a diffuser of light, is placed on the inside of the box over this opening. On either side of the opening on the outside of the box there is attached a grooved vertical strip of wood to act as a guide for the negative carrier, which may be an ordinary printing frame with the back removed or two pieces of thin, good quality glass, between which the negative is sandwiched. Metal or cardboard masks may be purchased or constructed to shield negatives of various sizes. An air vent must be constructed on top of the box to permit the escape of heat without allowing the escape of light. For this purpose several tin cans of unequal size, painted dead black, may be utilized, the smaller cans being placed within the larger and the bottoms perforated in different positions so that the light cannot shine through directly. The back of the camera is removed and the camera placed snugly against the window of the box. The negative carrier containing the mask and negative is inserted between the box and camera within the two grooved strips of wood. The light is turned on and the image focused sharply on a screen by moving the lens board of the camera backward or forward. The size of the image and therefore the degree of enlargement is controlled by varying the distance between the lens and the screen.

A convenient paper holder may be constructed from a stiff piece of cardboard by gluing four art corners, such as are used in mounting pictures in albums, on the cardboard in such a position that the bromide paper may be easily introduced and removed. Either the screen or the table on which the enlarger rests must be movable in order to obtain varying degrees of enlargement. In the latter case the wall of the room may be utilized as a screen.

In making enlargements, a darkroom illuminated by an orange safelight is necessary. The image is focused on the cardboard paper holder, which is affixed to the screen by several pushpins. The light in the enlarger is turned off and a piece of bromide paper is introduced into the paper holder. The light is then turned on again for the necessary exposure. A few trials with small strips of bromide paper will indicate the correct exposure to use.

The exposed bromide paper is placed in the developer, acid short-stop, and fixing solution in the same manner as in the processing of contact prints. For developer solution M. Q. tubes, D-72 developer or the formulas

recommended by the manufacturers of the paper used may be employed. The washing, drying and squeegeeing on polished ferrotype tins are carried out in the manner described for contact prints.

Almost any glossy bromide paper may be used, and varying grades of contrast—soft, normal or contrast—will tend to compensate for variations in negative quality. For reproduction purposes a sharp contrasty enlargement is best.

While enlargements of 4 or 5 diameters may be made in most sharp negatives without objectional grain, greater enlargements will necessitate the use of a fine grain negative developed in a fine grain developer such as D-76.

Making Lantern Slides.—Negatives to be used for the purpose of making lantern slides must be as nearly perfect as possible, because tiny defects, such as blurred images, scratches and pinholes, are tremendously magnified during the process of projection.

Lantern slides are really positive transparencies, and the technic of making slides is as simple as making contact prints or enlargements except that glass plates are used instead of paper. Developing, fixing, washing and drying are carried out in the same manner as for ordinary negative plates.

In making a lantern slide by contact printing, a regular printing frame is used and the emulsion side of the slide is placed in contact with the emulsion side of the negative. Exposure depends on the density of the negative and the strength of the light source. For Eastman Regular Lantern Slide Plates, which are recommended for normal negatives, at a distance of 6 feet from a 25 watt frosted lamp, the exposure is approximately five seconds. For the Eastman Slow Lantern Slide Plates, recommended for soft negatives, the exposure is approximately fifteen seconds. The chief disadvantage of contact printing is that negatives larger than the slide can be only partly included.

Projection printing allows enlargement or reduction of the original negative, the method being exactly the same as for bromide paper. In making reductions, the bellows extension must be increased and the easel brought closer to the lens. Three or four stout drawing pins attached to the easel will serve as a support for the plate during exposure. Focusing must be needle sharp, and preliminary focusing may be carried out on a spoiled undeveloped slide.

Full development should be secured with the use of a standard metol hydroquinone developer. Rinsing, fixing and drying follow, and subsequent reduction or intensification may be carried out if necessary. An orange safelight similar to the safelight for bromide paper may be used during the exposure and processing of the slides.

Varnishing the slide with Eastman Lantern Slide Varnish will protect it against "dewing." A mask of black paper with an opening 3 inches by 2¼ inches should next be applied, or undesired portions of the slide may be excluded by means of Eastman Lantern Slide Binders applied to the emulsion side of the slide. The slide is then carefully dusted and bound to a coverglass with gummed strips.

THE PHOTOGRAPHY OF THE PATIENT BY VISIBLE LIGHT

The Background.—In making a full length picture of a patient, or in photographing a part of the body, the background should be as inconspicuous as possible, in order to avoid detracting interest from the principal subject. A medium gray background is the most practical and an ordinary gray hospital blanket will prove ideal for this purpose. Where much photography is to be done it may pay to construct a background by stretching gray cloth over a wooden frame 6 feet square. A useful portable background is an ordinary roller shade, one side of which is white, the other side gray or black. The background should contrast with the tone of the subject, and for a person of dark complexion or a colored person it may be advisable to utilize a white background in the form of a white blanket or sheet. In clinics or in places where a proper background cannot be obtained, the patient may be photographed against a plain wall. Best results are obtained with the subject several yards from the background. It is important to remember, in photographing patients in surroundings where the background is apt to prove distracting, that utilizing a wide opening of the lens will shorten the depth of field and may automatically throw the background out of focus. In photographing a part of the body such as an arm or a leg, the part may be conveniently rested on the examining table over which there has been stretched a blanket or sheet.

Illumination.—While photographs may be made outdoors in direct sunlight or shade, the majority of pictures must of necessity be taken indoors, where the illumination is relatively poor. Artificial sources of light are consequently essential, and there are available two types of illuminants: Photoflood bulbs and Photoflash lamps.

The Photoflood bulb is a 65 volt Mazda lamp, which, when burned on a 115 volt circuit, produces the light equivalent of a 750 watt lamp. Each bulb consumes 2.15 amperes, and as many as five bulbs may be used safely on an ordinary house-lighting circuit. Although the life of the bulb is rated at two hours, the general experience is that Photoflood bulbs burn considerably longer. Photoflood bulbs are economical sources of light and are sufficiently small to be portable. The efficiency of the bulb is considerably increased by a reflector. Ordinary metal shades are satisfactory, but conical metal reflectors are preferable. Kodaflectors or other Photoflood reflectors are very convenient and may be purchased at small expense. The number of lamps used depends of course on the extent of the area to be photographed. One bulb will be sufficient for small lesions, but large areas will require as many as four or five Photofloods. Two lamps with two bulbs mounted in each will suffice for most purposes. The intense brilliance of the lights may be annoying to some patients and a diffusing screen made of several layers of muslin or cheese cloth will reduce the glare and produce a more even distribution of light. Unlike portraiture, the object is to reproduce detail accurately and to bring out deformities and blemishes rather than to soften them.

Flat lighting, in which the illumination is spread evenly over the subject minimizing shadows, is best suited for most subjects. This lighting may be obtained by arranging two lamps of equal intensity equidistant on each side of the subject. Three-quarter front lighting should be used where the face is to be photographed as for facial expression. The first lamp is placed 45 degrees above and to one side of the subject half way between the camera and the subject. The second lamp, focused on the shadow side of the face, is placed behind

the camera. A cardboard screen is held in front of the first lamp to cast a shadow on the ear, which will add contour to the face. A similar type of uneven lighting may be used in subjects when it is desired to emphasize contours.

The Photoflash lamp is a special type of bulb containing aluminum foil and oxygen, producing a brief blue-white light of great intensity when connected to a flashlight battery or ordinary 115 volt house circuit. The flash is one-fiftieth second, and snapshots may be made in cases of weak or nervous subjects who cannot hold still for time exposures. The intensity of illumination makes it possible to utilize small shutter openings, thus increasing the depth of field and rendering detail sharp in various planes. The time of posing is reduced to a minimum, and there is no time lost in arranging lights; consequently pictures may be taken in places where it is impossible to obtain conveniently proper illumination. To some physicians photography by means of the Photoflash lamp method will prove itself ideal to the exclusion of other illuminants. Two white portable reflectors, such as white window shades, mounted on stands placed on each side of the subject, will intensify and more evenly distribute the light. A conical reflector for the lamp similar to the Photoflood reflector is necessary to concentrate the light. The only disadvantage is the cost, since only one picture can be made with each lamp. However, when it is considered that retakes because of movement of the patient are practically eliminated, the actual cost per successful picture compares favorably with other methods of illumination.

Exposure.—After the patient has been posed in front of the background with the part to be photographed illuminated to best advantage, the camera mounted on a tripod is focused carefully on the subject. The distance from the subject to the camera must correspond exactly to the distance scale set on the camera. Failure to measure the distance accurately is responsible for the majority of out-of-focus pictures. Measurements must be made with a tape measure from the center of the lesion or part to be photographed to the lens of the camera. This is especially important in cameras not equipped with a ground glass focusing back. Cameras without a double extension bellows cannot be moved closer to the subject than 4 or 5 feet; consequently when the pathologic lesion or subject is small, it may be expedient to use a portrait attachment over the regular lens. It is usually advisable to photograph according to a definite scale. Some cameras, such as the Eastman Clinical camera, are equipped with a focusing scale which makes it easy to obtain identical areas in all photographs made. A good substitute for a focusing scale is to record the distance between the subject and the lens and to make subsequent photographs at the same distance.

The exposure is dependent on the intensity of light, lens aperture, and speed of the photographic emulsion used. The closer the lamps are moved to the subject, the greater the concentration of light and the less the exposure. Since in many instances the subject cannot be kept quiet, shutter speeds slower than one twenty-fifth second will result in a blurred picture. By using the same film and the same number of Photoflood bulbs at the same distance from the subject, exposures can easily be standardized by the physician and good results uniformly obtained. The wider apertures f/4.5, f/5.6 and f/6.3 will generally be found necessary for snapshots, but if the character of the picture is such as to necessitate sharpness of detail over a considerable area, greater depth of field will be obtained with the smaller apertures f/8, f/11, f/16 and f/22, and the exposure can be increased or the intensity of the light strengthened either by bringing the lamps closer to the subject or by employing more lamps. While a good exposure meter will undoubtedly prove itself invaluable, simple experimentation will teach one the proper exposure times to employ. As a general rule two Photoflood bulbs in a reflector at a distance of 4 feet from the subject will allow, with the fastest films and apertures of from f/4.5 to f/6.3, an exposure of one twenty-fifth second. Each lens stop as denoted by f/numbers necessitates twice the exposure required when the next larger stop is used. Thus, in the series f/4, f/5.6, f/8, f/11, f/16, f/22 and f/32, each successive stop will require twice the exposure of the one preceding.

In utilizing Photoflash lamps the subject is posed against the background and, if possible, white reflectors are arranged on each side of the subject. The camera, mounted on a tripod, is placed at a distance corresponding to the distance scale on the camera, and, if the camera has a ground glass back, focusing is accomplished by means of a Photoflood lamp. The Photoflash lamp is placed to the right of the camera so that a line drawn from the lamp to the subject forms with the axis of the camera a 30 to 45 degree angle. The extraneous lights in the room are turned off, the shutter of the camera, which has been set on Time, is opened, and the Photoflash lamp fired by turning on the switch, and finally the shutter of the camera is closed. With a No. 10 Photoflash lamp 3 feet from the subject, the diaphragm opening should be f/22; at 4 feet the opening should be f/16; at 9 feet, f/11. If expense is no object a Photoflash Synchronizer, such as is used by press photographers, may be purchased. This Synchronizer both operates the shutter of the camera and fires the Photoflash lamp.

Photographic Emulsions.—For all-round work a rapid orthochromatic material, such as Eastman Super Speed Ortho Portrait Safety Cut Film or, in roll film, Verichrome film will yield good results. Being insensitive to red, the orthochromatic materials register skin lesions and blemishes accurately without a filter. Panchromatic and supersensitive panchromatic emulsions may be used for speed work, and Eastman Portrait Panchromatic Cut Film, Wratten Hyper Sensitive Panchromatic Plate, and Kodak Super Sensitive Panchromatic Roll Film and Filmpack are popular materials of this type. In order to standardize results, one type of film or plate should be used until the capacities of that particular emulsion are fully understood. In using panchromatic emulsions it will be necessary to use a contrast filter, such as Wratten B green filter, for the purpose of accentuating reddish skin lesions. The exposure must, of course, be increased to compensate for the associated filter factor. Sometimes a Wratten C blue filter will accentuate a lesion better than the green filter. For accurate monochromatic rendering of a subject with panchromatic film, the X_1 or X_2 filter may be employed. Whenever extreme enlargements are contemplated, the use of a fine grain orthochromatic material or panchromatic emulsion, as Eastman Panatomic film, is advisable.

(To be continued)

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

HOGAN SUPER-BREVATHERM SHORT WAVE DIATHERMY UNIT, MODEL 8901, ACCEPTABLE

Manufacturer: McIntosh Electrical Corporation, Chicago.

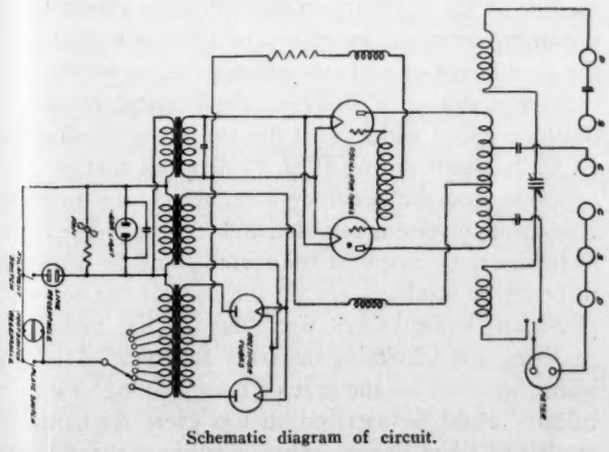
This unit is recommended for medical and surgical diathermy and for the application of therapeutic fever. It is essentially the same as the Hogan Super-Brevatherm Short Wave Diathermy Unit, Model 8898, which has been accepted by the Council.[1]

There has been no change in the circuit except for the inclusion of blocking condensers and such necessary wiring as found desirable for the operation of a cable electrode.

Hogan Super-Brevatherm, Model 8901.

The apparatus is mounted in a wooden cabinet with a removable cabinet door, and all component parts are accessible for inspection and repairs. The circuit is of the well known tuned plate, tuned grid circuit, two tube push-pull oscillator. Two oscillator and two rectifying tubes are employed. All parts carrying short wave currents are mounted on either ceramic or other low-loss insulating materials. The patient's circuit for the inductance cable is capacitatively coupled, while the patient's circuit for the pad and cuff electrodes and surgical diathermy is inductively coupled to the oscillator. The inductively coupled patient's circuit is tuned to electrical resonance by means of a variable condenser. For regulation of the power input, primary winding of the plate current transformer is equipped with taps to vary the input current. A thermocouple ammeter is used to indicate electrical resonance. The interior of the cabinet is cooled by a forced draft motor driven fan.

The power input, under maximum load, is about 1,100 watts. The wavelength is approximately 21 meters. Since there is no acceptable method of measuring the output power of short wave machines, this value is not given. The shipping weight of the unit is 137 pounds.



Schematic diagram of circuit.

In accordance with the regular procedure of considering devices submitted to the Council, the firm was asked to present evidence to substantiate the claims made in advertising matter and descriptive literature. The evidence presented by the firm designed to substantiate efficacy in heating human tissues was obtained as follows: The thighs of two vigorous men, aged 29 and 31, weighing 158 and 185 pounds (72 and 83 Kg.) respectively, were used for the experiments. Three observations were made on each subject—two on the left leg and one on the right of each individual. Hypodermic thermocouples manufactured by Leeds and Northrup Company and a portable precision potentiometer manufactured by the same company were employed in the investigation. The potentiometer and the thermocouples were checked against a Bureau of Standards Thermometer and the readings were accurate to within 0.1 degree C. The skin temperatures under the electrodes and the subcutaneous, the oral and the deep muscle temperatures were observed. Hypodermic needle thermometers were inserted in the thigh to a depth of from 1½ to 2 inches, depending on their thicknesses, while the other needle was inserted subcutaneously beneath the skin structure. The maximum current intensity was regulated by the skin comfort or tolerance of the patient. A reading was taken both before and after a twenty minute application of the current. After each test the thigh was permitted to cool to normal temperature. The highest temperature attained was recorded as the final temperature in each instance.

Cuff electrodes used were of the standard type furnished with the apparatus; that is, sheet metal covered with felt. They were about 2 inches wide, one-half inch thick and 24 inches long. These electrodes were placed on top of the flannel wrapping, about 8 inches apart, in most cases encircling the entire thigh. In those cases in which they did not reach around the thigh, the "open space" between the ends of the electrode was always at the posterior aspect of the thigh. Flannel or toweling was used for spacing or "build-up."

TABLE 1.—*Averages of Six Observations with Cuff Application*

Oral Temperature F.		Subcutaneous Temperature F.		Deep Muscle Temperature F.	
Initial	Final	Initial	Final	Initial	Final
99.11	99.09	89.08	95.25	97.38	102.96

TABLE 2.—*Averages of Six Observations with Coil Technic*

Oral Temperature F.		Subcutaneous Temperature F.		Deep Muscle Temperature F.	
Initial	Final	Initial	Final	Initial	Final
98.95	99.03	89.95	98.61	98.11	105.75

The averages of the six observations with cuff application are given in table 1.

When application was made by the electromagnetic induction method, double thicknesses of toweling were used to separate the five turns of cable, which were wound around the thigh. The treatment time was twenty minutes and the current intensity was governed by the patient's tolerance. The averages of six observations with coil technic are given in table 2.

The results indicate that the temperature rise is considerably above what can be expected from conventional diathermy, which has been adopted as a minimum standard of acceptance.

Evidence has been submitted by the firm to substantiate the efficacy of this unit for the administration of hyperpyrexia.

The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is much less than with conventional diathermy.

The machine was installed in a clinic acceptable to the Council and operated under actual clinical conditions. It was reported as giving satisfactory service.

In view of the favorable report based on the performance of this unit when cuff and coil electrodes are used, the Council on Physical Therapy voted to include the Hogan Super-Brevatherm Short Wave Diathermy Unit, Model 8901, in its list of accepted devices.

1. Hogan Super-Brevatherm Short Wave Diathermy Unit, Model 8898, Acceptable, J. A. M. A. **106**: 2148 (June 20) 1936.

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SATURDAY, JANUARY 9, 1937

MORTALITY FROM HEART DISEASE

Almost all recent statistics on the mortality from heart disease indicate a rapid rise in deaths from this cause. Is this increase real or apparent? Several factors enter into the gross figures. The rise in the average age of the population is an obvious one. The method of reporting heart disease on death certificates also affects the gross figures. The true interpretation, therefore, resolves itself into an analysis of the elements affecting mortality from heart disease into their various components. With this in view, Hedley [1] has reported a series of studies on the mortality from heart disease.

There is a difference, he points out, between the methods of clinical recording of heart disease and the mortality records as obtained from death certificates. The salient feature in modern clinical diagnosis and classification is the grouping of diseases and disorders of the heart on an etiologic basis. Thus, one of the chief difficulties in attempting to describe cardiac disease on any other basis than that of etiology is that dissimilar conditions are thereby placed in the same category. The clinical, pathologic and epidemiologic pictures differ with the causative factors. Quite different is the method of recording heart disease according to the International List of Causes of Death. This guide came into use during a period when interest centered around the discovery and interpretation of organic lesions rather than etiology. Although changes have been made since that time, the main basis of classification still rests on an anatomic interpretation. In addition to this obsolescence of terminology, the list fails to recognize many deaths due to heart disease. Thus, for example, deaths from rheumatic carditis are frequently placed under the title "rheumatic fever." Similarly, deaths from Sydenham's chorea are placed under "other diseases of the nervous system," the inference being that the patient dies of cerebral manifestations. Another factor that definitely affects the recording of deaths is the Manual of Joint Causes of Death. It is used to determine which of two or more conditions listed on a death certificate takes precedence as the cause of death. For instance, if heart disease and nephritis are both mentioned on a death certificate, the cause of death is listed as nephritis. Heart disease is considered secondary to almost all the other known factors. Causative cardiac conditions and associated circulatory disorders are consequently lost when so reported. The present system of recording deaths would seem no longer in accordance with modern clinical conceptions of heart disease. Failure to consider certain etiologic factors makes it impossible to evaluate their significance in causing heart disease.

Another important element in the classification of deaths from heart disease is pointed out by Hedley. In the last analysis, any statistical studies of mortality must be based on the individual death certificates. The ultimate responsibility for the accuracy of any scheme of tabulation is therefore dependent on the integrity, interest and training of those furnishing the designated authorities with the required information. Some of the accepted cardiac diagnoses serve, however, only as a satisfactory screen behind which to hide a diagnostic uncertainty. The ultimate importance of the death certificate should thus be realized by the physicians who fill them out, and every effort should be made to have them convey a correct interpretation of the facts. Even when this is done, however, the method of ascribing precedence to one cause of death over another previously referred to and controlled by the Manual of Joint Causes of Death may seriously affect the ultimate figures. Thus, in some statistics cited by Hedley, coronary thrombosis was diagnosed 144 times as a primary cause of death and 115 times as a contributory factor, appearing on 259 death certificates. In the official tabulation of causes of death, however, the cause was ascribed to disease of the coronary arteries in only seventy-eight instances, owing to the system of relative weighting of the significance of various conditions as causes of death.

As a result of a study of the hospital records of deaths certified under heart disease in the Washington, D. C., hospitals during 1932, Hedley felt that he could conclude that the accuracy with which the mortality from heart disease is reported and recorded leaves much to be desired. Some of the errors could be attributed to laxity or misdiagnoses on the part of the reporting physician, while others were due to the manner of assorting and tabulating mortality statistics. The chief source of error on the part of those signing death certificates could be ascribed to too great tendencies to certify as heart disease other conditions characterized by terminal congestive heart failure. Among 350 deaths officially recorded as being due to heart disease, which occurred in hospitals, seventy-one, or approximately 20 per cent, were from known noncardiac causes. Many deaths from heart disease are not officially recorded as such. Many conditions other than heart disease and most of the etiologic factors responsible

1. Hedley, O. F.: Studies of Heart Disease Mortality, U. S. Treasury Dept. Pub. Health Bull. 231, October 1936.

for heart disease are given greater weight than cardiac conditions. This fact produces a trend contrary to the other.

Hedley suggests that the classification of deaths from heart disease be modified to record the deaths on an etiologic basis in a manner not conflicting with the provisions of the International List of Causes of Death. The gist of the plan is that, in addition to tabulating heart disease under the existing titles of the International List, deaths due to various etiologic types of heart disease be placed in unofficial subtitles, so as to determine more nearly the causes of death. The use of an etiologic system will assure the practitioner that death certificates are tabulated more nearly as intended. It is further suggested that an additional factor of accuracy would be to allow physicians greater latitude in assigning causes of death when there is insufficient evidence to justify more exact diagnosis.

Although this study is offered as in no way a final solution of the problem, it makes increasingly obvious the unsatisfactory nature of present heart disease mortality statistics. Certainly, if the statistics are to be of real value, improvement in recording is highly necessary. As an attempt in this direction, this study by Hedley deserves immediate consideration.

THE CONFERENCE ON SYPHILIS

More than five hundred persons responded to the call of Surgeon General Thomas Parran of the United States Public Health Service for a three day conference in Washington last week on the control of venereal diseases, especially syphilis. Representatives of the American Medical Association, officers of state medical societies and practicing physicians attended, as well as health officers and social service workers. The conference was asked to consider the question of venereal disease control from six principal points of view. The reports that were adopted by the conference as a whole on the third day were in substance as follows:

1. Estimates were presented of the prevalence of syphilis in the United States. A minimum of 681,000 new cases of syphilis was declared to be the probable annual incidence of the disease. Prevalence in the population as a whole was estimated variously at from 5 to 10 per cent of the population, including syphilis in all its stages from initial infection to the late sequelae. It was recognized especially that all statistical data with relation to syphilis and the other venereal diseases are tentative and inadequate and that there is necessity not only for more accurate gathering of statistics but for research into possible statistical methods which might be applied to the problem of ascertaining the incidence, prevalence, trends and economic aspects of the venereal diseases.

2. The section on the public health control of syphilis stressed the necessity for carrying treatment facilities to all persons of all economic strata. Emphasis was placed, however, on the fact that no desire existed on the part of the public health officials to undertake the treatment of all cases of syphilis at public expense. It was declared that whenever and wherever possible patients should be treated by family physicians in the usual manner and that the personal relationship of patient to physician should be maintained wherever possible. The section reported that in its judgment the treatment of indigent and borderline patients in clinics would be a necessity. Adequate social service for the clinic to ascertain the degree of ability to pay was dealt with in another section. Reporting of the venereal diseases was stressed as a necessity in their control. The section recommended that the Surgeon General request reporting by name and address as in the case of other communicable diseases. This recommendation of the section was opposed from the floor of the conference and ultimately was amended to read in effect that reporting by name and address be encouraged where practicable, but that in other localities reports by number or by initials and date of birth be accepted for the present in order to allow opportunity for overcoming the well known reluctance of physicians to report venereal diseases by name. The necessity for furnishing laboratory service gratis and for the free distribution of drugs needed in the treatment of venereal diseases through public health authorities was stressed. A recommendation to the effect that prophylaxis be regarded as an integral part of the syphilis program was opposed from the floor. The opposition, however, was overwhelmingly defeated and the report of the section therefore included the recommendation that prophylaxis be included in the antisyphilis program.

3. The section on treatment presented a voluminous report, of which the salient points were the importance of early treatment and the treatment of the pregnant syphilitic woman. Emphasis was laid on the necessity for continuous treatment except in the case of late syphilis in persons of middle age or beyond; on the importance of confining the distribution of drugs through public health departments to established preparations—namely, the arsenicals, bismuth compounds, mercury ointments, and possibly iodide preparations.

4. The section on medical follow up of the venereal disease patient reported the importance and necessity for follow up in certain types of cases Much follow-up work can be prevented by efficient, courteous and expeditious handling of patients on their first visit to the clinic. Emphasis was also laid on the necessity for adequately trained nurses, either medical social workers or public health nurses, for follow-up procedures. Follow up is more effective if done by a person already known to the patient through previous contact. Where personnel needs to be augmented in order to take in a program of venereal disease follow up, it is better to extend the general staff to absorb the venereal dis-

ease load than to put on special workers, except that specially trained persons may be necessary and valuable in a supervisory and consultant capacity.

5. The section on cooperation of the private physician in the control of venereal diseases made a report which indicated the dual responsibility of the physician in any case of communicable disease, including the venereal diseases. This responsibility is for the patient and for the community. The section recommended that the responsibilities of public health officials include provision of easy, convenient and postage-free forms for necessary reporting, omitting names or other too positive identification where circumstances indicate, and providing most careful safeguards for confidential and secret keeping of the records; the distribution, gratis where required, of necessary drugs for the treatment of the venereal diseases; the provision, gratis, of necessary laboratory services, including serologic tests, darkfield examinations and the examination of pus for the gonococcus; hospitalization at public expense where necessary, especially for the syphilitic pregnant woman; and provision of consultation service to physicians, and to clinics apart from teaching centers, wherever practical.

The principles here presented seemed in general to meet with the approval of all groups represented. Recognition was given to the fact that conditions in the United States differ widely in different localities and even sometimes within a single community and that programs, subject only to general fundamentals, must be varied and adapted to meet local needs. Recognition was given in all the sections to the necessity for carrying out the program in the states and local communities through cooperation from the beginning between state health departments and state medical societies, and between local health departments and local medical societies.

In all probability most indigent patients in denser population centers will need to be treated in clinics. In smaller communities and rural areas, treatment of the indigent was recommended through the offices of family physicians. The recommendations included payment of the physician on such a basis as might locally be agreed on for services rendered to indigent patients. Certain questions were raised relating to the lack of uniformity of instruction in syphilology in the medical schools. The question was debated in the section on medical cooperation under the heading of undergraduate education and a resolution was adopted requesting the Surgeon General to refer the matter of undergraduate education in syphilology to the Council on Medical Education and Hospitals of the American Medical Association, and to the Association of American Medical Colleges. Stress was laid particularly on the desirability of carrying postgraduate educational efforts as well as the machinery of cooperation through the channels of organized medicine in the state and the local community.

Current Comment

AMERICAN MEDICAL ASSOCIATION BULLETIN SECTION

Last week THE JOURNAL published the first issue of the new Bulletin Section, which is to record the economic, social and business aspects of medical practice as well as the affairs of the Association. Certain changes are now made in this department to meet post office regulations. In the current issue, it appears following the Current Medical Literature department, just preceding the second advertising section, and the pages as numbered carry an additional letter B, indicating that they are paged for the *Bulletin*.

WHAT'S IN A NAME?

The emphasis placed on prompt and accurate registration of birth certification is amply borne out by the facts of its importance. Thus one example of many is brought out in a recent press bulletin from the Maryland Department of Health.[1] A young American, now a resident of Poland, is experiencing some difficulty in returning to Maryland, his native state. The physician in attendance at his birth twenty years ago wrote "female" instead of "male" on the birth certificate recorded in the state bureau of vital statistics. When the young man was about 7 years old, the father took the family to Poland. His mother, whose health was not good, and the two sons remained in Poland when the father returned to Maryland. A difficulty resulting from the error on the birth certificate remaining undetected for so long a period seems like a relatively inconsequential matter. Nevertheless, it is taking the combined efforts of the bureau of vital statistics, the young man's family, the family physician and the priest of the church in which he was baptized to bring about a satisfactory correction of this minor mistake. Further emphasis is accorded this point in a weekly health message from the United States Public Health Service and the Iowa State Department of Health.[2] This states, in part: "With the passing of the Old Age Assistance Act in the state of Iowa, many citizens have been called on to produce their birth certificate to prove identity and nativity. In many cases the applicant for a birth certificate has run into difficulty because of the death of parents, friends or perhaps the physician who was in attendance at the birth." Such registration is, in fact, at times essential and at others of great importance. It establishes the name, the date of birth and the child's parentage. The birth certificate may be required for permission to enter school, to work, to hold office or vote, or to establish age in connection with granting of pensions or inheritance of property. Both bulletins advise prompt choice of the child's name with the prompt and accurate filing without use of nicknames or anything else that might at a later date cause some question as to the accuracy of the certificate.

1. Department of Health, State of Maryland, Press Bull. 641, Nov. 9, 1936.
2. U. S. Pub. Health Service and Iowa State Department of Health, Health Message 526, Nov. 9, 1936.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Society News.—At a meeting of the Northwestern Division of the Medical Association of the State of Alabama in Jasper, January 8, the following speakers participated: Drs. Daniel C. Elkin, Atlanta, "Diagnosis and Treatment of Wounds of the Heart"; Audiss M. Walker, Tuscaloosa, "Sinuses, from Today's Aspect"; William W. Alexander, Florence, "Postparalytic Management of Anterior Poliomyelitis"; Ollie P. Board, Birmingham, "Diagnosis and Treatment of Peripheral Vascular Disease," and Lewis C. Davis, Gordo, "Treatment of Lobar Pneumonia." Dr. Charles B. Jackson, Jasper, gave the invocation.

ARKANSAS

Society News.—Drs. Charles T. Chamberlain and Arthur F. Hoge, Fort Smith, presented a symposium on gallbladder disease before the Sebastian County Medical Society, November 10.——At a meeting of the Mississippi County Medical Society in Blytheville, November 10, the speakers, all of Memphis, were Drs. Michael J. Roach Jr. on "Toxemias of Pregnancy"; Samuel Blackwell, "Nonsurgical Treatment of Gallbladder Disease," and Chester D. Allen, "Urethral Stricture."——The Randolph-Lawrence County Medical Society was addressed at Walnut Ridge, November 10, by Drs. Henry O. Walker, Newport, on "Acute Gangrene of the Leg" and Ellis L. Gibson, Alicia, "Infections."——At a meeting of the Benton County Medical Society in Rogers, November 12, the speakers were Drs. Sam Grantham Jr., on "Intestinal Obstruction: Diagnosis and Treatment" and Paul W. Walker, "Chronic Prostatitis: A New Method of Treatment"; both are of Joplin, Mo.——Dr. William R. Brooksher, Fort Smith, addressed the Washington County Medical Society at Fayetteville, December 1, on "Modern Trends in Roentgen Therapy."

CALIFORNIA

Speakers' Bureau Organized.—The Los Angeles County Medical Association has created a speakers' bureau. Officers are Drs. Paul A. Quaintance, chairman; Lewis A. Alesen, vice chairman, and Charles E. Futch, secretary.

Society News.—Dr. Arthur E. Hertzler, Halstead, Kan., addressed the Los Angeles Surgical Society, December 11, on "Differentiation Betwixt Toxicity of Degeneration and Toxicity of Hyperplasia of the Thyroid Gland."——Dr. Donald D. Lum, Alameda, among others, discussed "New Developments in the Treatment of Meningococcus Meningitis" before the Alameda County Medical Association at its meeting in Oakland, December 21.

Medical Postage Stamp Exhibit.—A special exhibit of postage stamps relating to medicine has been arranged in the University of California Medical School Library, according to *California and Western Medicine*. A large part of the exhibit is the property of Karl F. Meyer, Ph.D., San Francisco, director, Hooper Foundation for Medical Research, and includes stamps issued by many countries in commemoration of medical events or physicians of prominence.

FLORIDA

Society News.—At a meeting of the De Soto-Hardee-Highlands County Medical Society in Wauchula, November 10, Drs. W. Wardlaw Jones, Dade City, discussed early pregnancy with special reference to abdominal pains, and Gordon H. McSwain, Arcadia, treatment of burns.——Dr. Gideon Timberlake, St. Petersburg, addressed the Pinellas County Medical Society, December 4, on "Pathology, Symptomatology and Diagnosis of Diseases of the Prostate," and Dr. Arthur J. Logie, Chattahoochee, of the state board of health, outlined plans for an antituberculosis program.

ILLINOIS

Quarantined for Influenza.—The Hines Memorial Hospital at Hines has been placed under quarantine for an indefinite period on account of the prevalence of influenza, it was reported December 30. While there is no outbreak among the 1,750 patients in the hospital, the step was taken as a precautionary measure. During the quarantine, visitors will be admitted only in case of emergency.

Chicago

Annual Meeting of Heart Association.—The Chicago Heart Association will hold its fifteenth annual meeting at the Congress Hotel, January 14. Dr. Thomas Duckett Jones, instructor in medicine, Harvard University Medical School, Boston, will discuss "The Natural History of Rheumatic Fever and Heart Disease with Especial Reference to Etiology and Prognosis."

Lectures and Seminars on Psychoanalysis.—"The History of Medical Psychology" and "The Psychology and Sociology of Suicide" will be discussed in a series of lectures by Dr. Gregory Zilboorg, New York, during the second quarter at the Institute of Psychoanalysis. During the same period a series of lectures and seminars will be offered only for members of the Chicago Psychoanalytic Society and the candidates of the institute. Lecturers will include Drs. Therese Benedek, Thomas M. French and Franz G. Alexander, director of the institute.

Dr. Irving Cutter Appointed Medical Director of North Western Railway.—Dr. Irving S. Cutter, since 1925 dean of Northwestern University Medical School, Chicago, and since 1934 health editor of the Chicago *Tribune*, has been appointed medical director of the Chicago and North Western Railway. He has also been medical director of Passavant Hospital since 1928. Dr. Cutter will continue to hold his other positions. He graduated from the University of Nebraska College of Medicine, Omaha, and was identified with his alma mater from 1910 to 1925, holding the deanship for the years 1915-1925. Dr. Victor H. Horning has been named assistant to Dr. Cutter in his new position.

Branch Meetings.—Dr. Francis D. Murphy, Milwaukee, addressed the Englewood Branch of the Chicago Medical Society, January 5, on "Management of Cardiovascular Renal Diseases."——The North Shore Branch devoted its meeting, January 5, to case reports by the staff of Swedish Covenant Hospital: Drs. Ralph A. Davis, Raymond F. Elmer, Oscar T. Roberg, Eric Oldberg and Willard Van Hazel.——At a meeting of the West Side Branch, December 17, Drs. Eugene T. McEnery and Paul H. Holinger spoke on bronchiectasis in children.——Dr. Henry F. Helmholz, Rochester, Minn., discussed "Mandelic Acid in the Treatment of Urinary Infection in Childhood" before the North Side Branch, January 7, and Dr. Charles W. Mayo, Rochester, "Digestive Qualifications of Man."

INDIANA

Motion Picture Operator for State Health Department.—To meet the increased demands of health organizations for visual education programs, the Indiana State Department of Health has secured the full time services of a motion picture operator to assist in projecting lantern slides and other health programs. Mr. Noble J. Smallwood, the operator, will be available to all groups interested in health programs; there will be no charge for the service. The state department asks that requests be sent in at least two weeks in advance of the date of the program.

Society News.—Surgery in the treatment of pulmonary tuberculosis was discussed at the meeting of the Indianapolis Medical Society, December 22, with Drs. Charles J. McIntyre, James H. Stygall and Frank B. Ramsey as the speakers.——Dr. Verne K. Harvey, Indianapolis, discussed health aspects of the Social Security Act before the Vigo County Medical Society, December 8.——At a meeting of the Kosciusko County Medical Society in Warsaw, December 8, Dr. George L. Kress, Warsaw, discussed relief of pain in labor.——Drs. Clarence L. Bock and Theodore R. Hayes, Muncie, addressed the Jay County Medical Society in Portland, December 4, on bladder neck obstruction.——The medical and bar associations of Jasper and Newton counties met in Rensselaer, December 3; the speaker was Mr. Albert Stump, Indianapolis attorney.——Dr. Arthur B. Richter, Flora, discussed treatment of nephritis before the Carroll County Medical Society in Delphi, December 10.——At a meeting of the Fort Wayne Medical Society in Fort Wayne, December 15, Dr. David I. Schwartz, Fort Wayne, presented a paper on "Treatment of Acute Hematogenous Osteomyelitis."——Drs. Frank W. Cregor and John E. Dalton, Indianapolis, conducted a clinic on some of the commoner skin diseases before the Sullivan County Medical Society in Sullivan, December 2.

IOWA

Personal.—Dr. Albert E. Shaw has been elected coroner of Polk County to succeed William A. Carpenter; both are of Des Moines.——Dr. Milford E. Barnes, Iowa City, has been elected president of the Iowa Tuberculosis Association to fill the unexpired term of the late Dr. James A. Edwards, Oakdale. ——Dr. Harry A. Stribley has been appointed in charge of a new clinic for the treatment of venereal disease which opened in Dubuque December 1.

First District Health Unit.—The first public health district in Iowa has been organized with Dr. William M. Trotter, formerly of Maxwell, as director. To be known as district number 1, the unit comprises the counties of Lyon, Osceola, Sioux, Plymouth, O'Brien and Cherokee. It will supplement but in no way interfere with health work now being carried out in the counties. Similar health districts are to be formed in other parts of the state as rapidly as trained personnel is available, it was reported.

Society News.—Dr. Karl A. Menninger, Topeka, Kan., will address the Linn County Medical Society, January 15, in Cedar Rapids. His subject will be "Various Forms of Self Destruction." Dr. John Royal Moore, Philadelphia, discussed "Fractures of the Neck of the Femur" before the society, December 17. Dr. Raymond J. Stephen, Cedar Rapids, read a paper on "The Ophthalmoscope in General Practice."——Dr. Percival Bailey, Chicago, discussed the treatment of common neurologic disorders before the Black Hawk County Medical Society in Waterloo, November 17.——At a meeting of the Marshall County Medical Society in Marshalltown, December 1, Dr. George B. Eusterman, Rochester, Minn., spoke on diagnosis and treatment of gastro-intestinal disorders.

KENTUCKY

Personal.—Dr. Benjamin T. Black, Campbellsville, recently celebrated the fiftieth anniversary of his settling in that town. Dr. Black was graduated from the University of Louisville School of Medicine in 1885.

LOUISIANA

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended December 26, indicate that the highest mortality rate (20.3) appears for New Orleans and that the rate for the group of cities as a whole was 11.9. The mortality rate for New Orleans for the corresponding period last year was 22.3 and for the group of cities as a whole 12.6. The annual rate for eighty-six cities for the fifty-two weeks of 1936 was 12 as against a rate of 11.4 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

MAINE

Society News.—At a meeting of the Kennebec County Medical Association in Gardiner, November 19, the speakers included Drs. Merrill E. Joss, Richmond, on pregnancy with poliomyelitis, and Silas O. Clason, Gardiner, use of solution of posterior pituitary in labor.——Dr. Richard P. Jones, Belfast, read a paper before the Waldo County Medical Society in Belfast, November 19, entitled "A Review of Some of the More Common Blood Dyscrasias."——The Washington County Medical Society was addressed in Whiting, November 4, by Drs. Frederick T. Hill, Waterville, on "Bronchoscopy as an Aid to Diagnosis," and John O. Piper, Waterville, "Complications of Diabetes."——Dr. Robert H. Aldrich, Boston, addressed the York County Medical Society, recently, on "Gentian Violet and Aniline Dye Treatment of Burns."

MARYLAND

Dr. Rowland Honored.—Special ceremonies were held at the University of Maryland School of Medicine, Baltimore, December 18, to commemorate the twentieth anniversary of Dr. James M. H. Rowland as dean. The occasion was also a part of the Founder's Day celebration. The speaker at the morning ceremony in honor of Dr. Rowland was Dr. Thurman D. Kitchin, president of Wake Forest College, Wake Forest, N. C. An oil portrait by Thomas C. Corner was presented to the university by Dr. Charles Bagley Jr., acting for the faculty of the medical school. Dr. Walter D. Wise, professor of clinical surgery at the university, officiated as toastmaster at the banquet in the evening, and speakers included Drs. Alan M. Chesney, dean, Johns Hopkins University School of Medicine; Maurice C. Pincoffs, professor of medicine at Maryland, and Charles Reid Edwards, professor of clinical surgery at Maryland. Samuel K. Dennis, chief justice of the supreme court, Baltimore, also spoke. A bronze bust of Dr. Rowland, made by his daughter, Mrs. Carl Clarke, was presented to the university by members of the family. Dr. Rowland is also professor of obstetrics.

MASSACHUSETTS

Personal.—Dr. Frank H. Lahey, Boston, addressed the annual meeting of the local chapter of Alpha Omega Alpha Honorary Medical Fraternity in New Orleans, December 18, on "The Management of Biliary Tract Diseases." The meeting was open to the public.——Augustus Herman Gill, Ph.D., Belmont, professor emeritus of chemistry, Massachusetts Institute of Technology, and a member of the state board of health, died at his home, November 11, aged 72 years.

Public Sunday Afternoon Lectures.—A course of free public lectures will open at the Harvard University Medical School, Boston, January 10, to continue each Sunday afternoon until March 21. The following program will be presented:

Philip Drinker, Ch.E., Air Conditioning and Health, January 10.
Dr. Soma Weiss, Blood Pressure—Low and High, January 17.
Dr. Tracy J. Putnam, Pain and Its Treatment, January 24.
Dr. Charles Macfie Campbell, Social Stress and Mental Health, January 31.
Dr. William T. Salter, Cancer, February 7.
Dr. Edward D. Churchill, Surgical Aid in Lung Diseases, February 14.
Dr. Theodore L. Terry, The Care of the Eyes, February 21.
Dr. Louis K. Diamond, The Anemic Child, February 28.
Dr. William H. Robey, Preparing for a Comfortable Old Age, March 7.
Dr. Arthur T. Hertig, Abnormal Terminations of Early Pregnancy, March 14.
Dr. Joseph C. Aub, Glands of Internal Secretion and Human Activity, March 21.

MICHIGAN

Dr. Waggoner Named Professor of Psychiatry.—Dr. Raymond W. Waggoner, associate professor of neurology, University of Michigan Medical School, Ann Arbor, has been appointed professor and director of the department of psychiatry. His appointment as director of the state psychopathic hospital was recently announced. In both positions Dr. Waggoner succeeds Dr. Albert M. Barrett, who died April 2, 1936. An alumnus of the school, he has been associated with its faculty since 1929.

Society News.—At a meeting of the Detroit Society of Neurology in Northville, November 19, the speakers included Thorlief G. Hegge, Ph.D., on "Psychological Variations in High Grade and Borderline Defectives."——Dr. Robert L. Schaefer, Detroit, addressed the Bay County Medical Society, November 11, on "Clinical Indications for the Anterior Pituitary-like Sex Hormone."——Dr. Martin H. Hoffmann, Eloise, discussed "Problems of Nervous Patients" before the Genesee County Medical Society, December 2.

Memorial to Dr. Huber.—The *Journal of Comparative Neurology* for December was designated the Huber Memorial Volume in honor of the late Dr. Gotthelf Carl Huber, who at the time of his death, Dec. 26, 1934, was dean of the University of Michigan Medical School, Ann Arbor. The issue contains primarily papers dealing with neuro-anatomic research done by the authors while working under Dr. Huber's direction. Dr. Huber graduated from the university when it was known as the University of Michigan Department of Medicine and Surgery in 1887. Identified with the school for many years in various capacities, he had been professor of anatomy and director of the anatomic laboratories since 1914 and dean since 1927.

The Wayne County Programs.—Dr. Logan Clendening, Kansas City, Mo., addressed the Wayne County Medical Society, Detroit, January 4, on "Laryngological Causes of the Great War." Dr. Alice Hamilton, Boston, consultant, U. S. Department of Labor, will address the medical section, January 11, on "New Developments in the Field of Common Industrial Poisons." Dr. James B. Collip, professor of biochemistry, McGill University, Montreal, will discuss "Studies on the Anterior Pituitaries and Related Glands" before a general meeting, January 18, and Dr. Malcolm T. MacEachern of the American College of Surgeons, Chicago, "Trends in Medical Practice" before a meeting of the surgical section, January 25.

MINNESOTA

Society News.—The Hennepin County Medical Society was addressed in Minneapolis, December 16, by Edmund V. Cowdry, Ph.D., St. Louis, on "Pathogenic Viruses," and, December 9, by Drs. Charles D. Creevy and James A. Johnson on "Present Status of Transurethral Resections" and "Treatment of Carcinoma of the Rectum by Electrocoagulation" respectively.——Dr. William L. Benedict, Rochester, addressed the Minnesota Academy of Medicine in Minneapolis, December 9, on "Episcleritis in Relation to Disease of the Pelvic Organs," and Dr. Alfred Hoff, St. Paul, "Agranulocytosis."——Dr. Edwin A. Kilbride, Worthington, was elected president of the Southwestern Minnesota Medical Society at its annual meeting in Worthington, November 16; Dr. Charles L. Sherman, Luverne, vice president, and Dr. Hermanus De Boer, Edgerton, secretary.

MISSISSIPPI

Society News.—The Clarksdale and Six Counties Medical Society was addressed in Clarksdale recently by Drs. Wesley W. Hall, Shelby, on ruptured tubal pregnancies; Winston C. Pool, Cary, coronary artery disease, and Henry C. Ricks, Jackson, poliomyelitis. Dr. Hiram W. Kostmayer, New Orleans, addressed the banquet session on "Endocrine Therapy in Gynecology."——At a meeting of the Coahoma County Medical Society and the staff of Clarksdale Hospital in November, Dr. William P. Warfield, Clarksdale, discussed infections of the upper respiratory tract in infants and children.

MISSOURI

The Hodgen Lecture.—Dr. Edward D. Churchill, John Homans professor of surgery, Harvard University Medical School, Boston, will deliver the annual Hodgen Lecture before the St. Louis Medical Society, January 12. His subject will be "Surgery of the Parathyroids." The lecture is under the auspices of the St. Louis Surgical Society and the Medical Fund Society.

Society News.—The St. Louis Medical Society was addressed, December 15, by Drs. Benjamin H. Orndoff, Chicago, on "Value of the X-Rays and Radiopaque Oils in the Detection of Pathology of the Cervix, Corpus Uteri and Oviducts," and Henry Schmitz, Chicago, "Prophylaxis and Early Diagnosis of Cancer of the Cervix." The society met jointly with the ophthalmic section, December 22, in a program commemorating the eightieth anniversary of Albrecht von Graefe's discovery of the efficacy of iridectomy for glaucoma. Guest speakers were Drs. William F. Petersen on "Glaucoma: Autonomic Integration and Environment" and Michael Goldenburg, who presented the ophthalmic discussion; both are of Chicago.——Dr. Iago Galdston, New York, addressed the thirtieth annual meeting of the Tuberculosis and Health Society of St. Louis, December 7, on "Science versus Human Beings."——At a joint meeting of the St. Louis Dental Society with the St. Louis County Medical Society, January 4, Ura G. Rickert, D.D.S., professor of diagnosis, dental therapeutics and radiology, University of Michigan School of Dentistry, Ann Arbor, spoke on "Twenty Years of Study of Rheumatic Diseases from the Dental Viewpoint."

NEBRASKA

Society News.—Dr. Walter M. Simpson, Dayton, Ohio, addressed the Omaha-Douglas County Medical Society, December 8, on "Experiences in Artificial Fever," and Dr. Abram E. Bennett, Omaha, reported the progress of a fever therapy research project at the University of Nebraska College of Medicine.

NEW MEXICO

Personal.—Dr. Elias T. Hensley, Portales, has been appointed a member of the state board of medical examiners to succeed the late Dr. Frank H. Johnson, Carrizozo.

NEW YORK

Dr. Sakel Lectures on Hypoglycemic Treatment of Schizophrenia.—Dr. Manfred Sakel, Vienna, is giving a six weeks course of instruction at the Harlem Valley State Hospital, Wingdale, in the hypoglycemic treatment of schizophrenia, at the invitation of Dr. Frederick W. Parsons, commissioner of the state department of mental hygiene. Dr. Parsons has authorized each state hospital to send a physician to the Harlem Valley State Hospital for instruction in the technic of the new therapy. A paper on this subject by Dr. Julius Steinfeld, Peoria, Ill., appears in this issue of THE JOURNAL, page 91, and one by Dr. Bernard Glueck, Ossining, was published Sept. 26, 1936, page 1029.

New York City

Theobald Smith Lecture.—Dr. Hans Zinsser, Charles Wilder professor of bacteriology and immunology, Harvard Medical School, Boston, will give the annual Theobald Smith Lecture of the New York Society of Tropical Diseases, January 22, at the Cornell University Medical College, on "Rickettsia Diseases."

Hospital News.—A new physical therapy unit was opened recently at the New York Post-Graduate Medical School and Hospital with Dr. John D. Currence as its head. The unit includes a special tank for underwater therapy.——Dr. Manfred Sakel, Vienna, gave a lecture at Mount Sinai Hospital, November 12, on "Hypoglycemia and Its Therapeutic Effect."

Faculty Changes at New York University.—Among recent changes in the faculty of New York University College of Medicine were the following promotions:

Dr. Thomas A. Gonzales, to associate professor of forensic medicine.
Drs. Milton Helpern and Benjamin M. Vance, assistant professors of forensic medicine.
Dr. James Burns Amberson Jr., professor of clinical medicine.
Dr. Charles Gottlieb, assistant professor of radiology.
Dr. Milton Benjamin Rosenbluth, assistant professor of clinical medicine.

Dr. Alfred Townsend Osgood, professor of urology since 1912, was made professor emeritus.

Lectures by Professor Arcé.—Dr. Jose Arcé, Buenos Aires, professor of surgery at the University of Buenos Aires and rector of the university, arrived in New York December 15 for a lecture tour as the guest of chapters of the Pan American Medical Association. Dr. Arcé will speak on "Pan American Medicine" before the chapters in New York, Washington, Los Angeles and San Francisco and will also observe methods of teaching graduate physicians. Dr. Joseph Jordan Eller, director general of the association, and Mrs. Eller gave a reception Sunday, December 20, in honor of Dr. Arcé and his party, which includes Drs. Adolfo F. Landivar, Antonio Egeus and Isidro Castillo Odena, all professors of surgery at the University of Buenos Aires.

Dr. Reynolds Honored.—The committee on medical education of the New York Academy of Medicine gave a dinner December 7 in honor of Dr. Frederick P. Reynolds, who is retiring from the secretaryship of the committee after several years' service. Dr. Carl Eggers, chairman of the committee, presided at the dinner and those present included twenty-two members of the committee; Major Gen. Charles R. Reynolds, surgeon general, U. S. Army, brother of Dr. Reynolds, and Dr. Mahlon Ashford, who has been appointed to succeed Dr. Reynolds as secretary. Dr. Reynolds spent thirty years in service with the Army Medical Corps, retiring in 1923. He was graduated from the University of Pennsylvania School of Medicine in 1890 and is now 69 years old. In addition to serving as secretary of medical education he was assistant secretary of the academy.

Society News.—The Medical Society of the County of New York devoted part of its meeting December 21 to a memorial session in honor of the late Dr. Daniel S. Dougherty, secretary of the society from 1917 to 1936 and director from 1929 to 1936. Dr. Orrin S. Wightman delivered a eulogy. Dr. Charles Gordon Heyd, President of the American Medical Association, made an address on "Organized Medicine" and Dr. Floyd S. Winslow, Rochester, N. Y., president of the Medical Society of the State of New York, on the current activities of that society.——Drs. Frank N. Wilson, Ann Arbor, Mich., and Maude E. S. Abbott, Montreal, will be the speakers at a scientific meeting of the Committee on Cardiac Clinics of the New York Heart Association, January 12, on "The Precordial Electrocardiogram" and "The Clinical Significance and the Differential Diagnosis of the Acyanotic and Cyanose Tardive Groups of Congenital Cardiacs" respectively.——Dr. Robert P. Wadhams was recently elected president of the New York University College of Medicine Alumni, and Dr. James W. Smith, secretary. The next alumni day will be held February 20 at the college.

NORTH CAROLINA

Personal.—Dr. Bennie B. Dalton, Rockingham, has resigned as health officer of Richmond County to enter private practice in Liberty.——Dr. John McCampbell, medical superintendent of the State Hospital, Morganton, has been appointed a member of the state eugenics board, succeeding Dr. W. Clinton Linville, Goldsboro.

Society News.—A tricounty medical society was organized at a meeting in Ahoskie in November, representing Hertford, Bertie and Gates counties. Dr. Louis K. Walker, Ahoskie, was made president and Dr. Thomas G. Faison, Winton, secretary. ——Dr. Wingate M. Johnson, Winston-Salem, addressed the Rowan County Medical Society, Salisbury, December 3, on "The Trend Toward Socialized Medicine in the United States." ——Dr. George F. Cahill, New York, addressed the Guilford County Medical Society, Greensboro, December 8, on "The Present Value of Roentgenograms in Urinary Tract Injuries."

Hospital News.—A new building for tuberculous patients recently completed at the State Hospital for Negro Insane, Goldsboro, has been named the Linville Building in honor of Dr. W. Clinton Linville, who has been superintendent of the institution for the past ten years. The new building accommodates 150 patients.——Recent guest speakers at Duke Hospital, Durham, have been Drs. Albert Graeme Mitchell, Cincinnati, on endocrinology; Sanders L. Christian, U. S. Public Health Service, Washington, D. C., the history and functions of the service, and George W. McCoy, director of the National Health Institute, Washington, recent advances in epidemiology.

OHIO

Personal.—Dr. John B. Kistler, Newcomerstown, has been appointed medical inspector in the division of communicable diseases of the state department of health.

Dr. Schiller to Lecture in Toledo.—Dr. Walter Schiller of the University of Vienna will be the lecturer for the thirteenth annual postgraduate course presented by the Academy of Medicine of Toledo during the week of January 11. Dr. Schiller's topics will be: obstetric pathology, gynecologic pathology, including early diagnosis of ovarian tumors, obstetric and gynecologic endocrinology.

Society News.—Dr. Roll H. Markwith, Akron, was elected president of the Ohio Federation of Public Health Officials at the recent conference in Columbus.——Dr. Chevalier L. Jackson, Philadelphia, addressed the Marion Academy of Medicine and the Marion chapter of the Pan American Medical Association, December 1, on indications for bronchoscopy.——Dr. Roscoe R. Graham, Toronto, addressed the Cleveland Academy of Medicine, December 18, on duodenal ulcer.——Dr. George H. Belote, Ann Arbor, Mich., addressed the Toledo Academy of Medicine at its annual joint meeting with the Toledo Dental Society, December 4, on "Lesions of the Mouth."

OKLAHOMA

Society News.—Dr. Arthur C. Pattison, Oklahoma City, addressed the Garfield County Medical Society, Enid, November 27, on surgery of the chest.——Drs. Harry S. Price and Julia Florence W. Austin, Dallas, Texas, addressed the Payne County Medical Association in Cushing, November 19, on endocrinology. ——Dr. Robert C. Sullivan, Ardmore, among others, addressed the Carter County Medical Society in Ardmore, November 9, on fractures of the hip joint and of the wrist.——At a meeting of the Kay County Medical Society in Tonkawa, November 19, the speakers were Drs. Philip M. McNeill and Herbert D. Collins, Oklahoma City, on pneumonia and appendicitis, respectively.

PENNSYLVANIA

Society News.—Dr. Harold L. Mitchell, Pittsburgh, addressed the Washington County Medical Society, Washington, December 9, on "Vascular Diseases of the Nervous System."——Dr. William James Gardner, Cleveland, addressed the Lawrence County Medical Society, New Castle, December 3, on disease conditions in the head.

Study of Medical Care for the Indigent.—Following the abandonment of emergency medical relief service in September, 1936, appointment of a commission to study medical care of the indigent and draw up a policy for subsequent development was recommended by representatives of the professional groups participating in medical relief. With the approval of the Pennsylvania Public Health Legislative Conference and the board of trustees of the Medical Society of the State of Pennsylvania, the following representatives of the state organizations comprising the legislative conference were appointed to the commission:

Dr. George Harlan Wells, Philadelphia, representing the Homeopathic Medical Society of Pennsylvania.
Dr. Chauncey L. Palmer, Pittsburgh, Medical Society of the State of Pennsylvania.
Charles H. Hollister, D.D.S., Pennsylvania State Dental Society.
Dr. Charles J. Hemminger, Somerset, Pennsylvania State Eclectic Medical Society.
Mr. John C. Walton, Philadelphia, the State Pharmaceutical Association.
Mr. Melvin L. Sutley, Drexel Hill, Hospital Association of Pennsylvania.
Miss Netta Ford, R.N., York, Pennsylvania State Nurses Association.

Dr. Samuel H. Brown, Philadelphia, has been chosen as director of the survey, from which recommendations will be developed for presentation to the state legislature not later than April 1.

Philadelphia

County Society Sponsors a Public Meeting.—The Philadelphia County Medical Society invites the public to attend a meeting January 27, at which Dr. Charles Gordon Heyd, New York, President of the American Medical Association, will speak on "Organized Medicine and the Public" and Dr. Maxwell J. Lick, Erie, president of the Medical Society of the State of Pennsylvania, on "Dramatic Episodes of Medicine."

Society News.—Drs. Henry K. Sangree and Margaret C. Sturgis addressed the Philadelphia Urological Society, December 21, on "Sterility Studies in the Male, with Their Practical Application" and "Sterility Studies in the Female" respectively. ——A symposium on diseases of the colon will be presented at the meeting of the Philadelphia County Medical Society, January 13, by Drs. William A. Swalm, Bernard P. Widmann, Russell S. Boles and Henry L. Bockus.

Pittsburgh

Personal.—Dr. Charles E. Ziegler has been appointed professor of obstetrics at the University of Pittsburgh School of Medicine to fill a vacancy created in 1933 by the retirement of Dr. Harold A. Miller.——Lawrence Wade Bass, Ph.D., recently director of research for the Borden Company, New York, has been appointed assistant director of Mellon Institute of Industrial Research. Dr. Bass received his doctorate at Yale University in 1922 and later studied abroad. From 1925 to 1927 he was an assistant and for the next two years an associate at the Rockefeller Institute for Medical Research, New York. From 1929 to 1931 he was associated with Mellon Institute as executive assistant.

TENNESSEE

Society News.—Dr. William D. Stinson, Memphis, among others, addressed the Dyer, Lake and Crockett Counties Medical Society recently on "Focal Infection in the Nasopharynx." ——Drs. Roderick Heffron, Boston, and James K. Hall, Richmond, Va., addressed the Sullivan-Johnson Counties Medical Society in Bristol on "Serum Treatment of Lobar Pneumonia" and "Functional Nervous Diseases" respectively.——Dr. Edward L. Turner addressed the Davidson County Medical Society, Nashville, November 3, on "A Common Lesion of the Cervical Spine Responsible for Segmental Neuritis."

TEXAS

Dallas Clinical Society Spring Conference.—The ninth spring clinical conference sponsored by the Dallas Southern Clinical Society will be held at the Adolphus Hotel, March 15-18. Guest speakers will include Drs. George E. Fahr, Minneapolis; Elmer L. Sevringhaus, Madison, Wis.; William F. Rienhoff Jr., Baltimore; Thomas G. Orr, Kansas City, Mo.; Joe V. Meigs and Charles F. McKhann, Boston; Francis E. Senear, Charles M. McKenna and William J. Dieckmann, Chicago; William Mithoefer, Cincinnati; Walter I. Lillie, Philadelphia, and Chauncey D. Leake, Ph.D., San Francisco.

WASHINGTON

Seminar in Internal Medicine.—Dr. Goronwy O. Broun, St. Louis, conducted a seminar in internal medicine at the Seattle General Hospital, December 29-31. His subjects were primary anemia, epidemic encephalitis, liver and gallbladder problems. At a dinner at the Rainier Club Wednesday evening he spoke on "Sugar Tolerance Studies with Particular Reference to the Findings in Epilepsy."

Changes in Health Officers.—Dr. James P. Mooney, Ellensburg, has resigned as health officer of Kittitas County and has been succeeded by Dr. Samuel M. Wendt, Ellensburg. Dr. Robert J. Skaife, Colfax, has resigned as health officer of Whitman County, after holding the position twenty years. Dr. John A. Kahl, Vancouver, has been appointed health officer of Clark County, succeeding Dr. Clyde B. Hutt, Vancouver, who has entered private practice.

Society News.—Dr. Barnet E. Bonar, Salt Lake City, presented a motion picture on fetal respiration at a meeting of the Spokane County Medical Society, December 10, and Dr. James D. Edgar, Spokane, discussed early diagnosis of

tumors.——Dr. Goronwy O. Broun, St. Louis, addressed the King County Medical Society, Seattle, December 29, on "Physiology and Pathology of Bone Marrow."——Dr. Woodard A. Niethammer, Tacoma, addressed the Pierce County Medical Society, Tacoma, recently on "Iodine in the Treatment and Prevention of Goiter."——At a recent meeting of the Yakima County Medical Society, Yakima, the speakers, all of whom are of Spokane, were Drs. John B. Plastino on "The Endocrines in Hypertension, Carbohydrate Metabolism and Obesity"; Donald A. Palmer, "Achylia Gastrica, Pernicious Anemia and Gastric Polypi," and James M. Nelson, "Water Balance and Dehydration in Surgical Patients."

WISCONSIN

Society News. — The Milwaukee County Medical Society and the Milwaukee Health Department sponsored a tuberculosis detection program at the South Division High School, Milwaukee, beginning December 7.——Dr. Wheelan D. Sutliff, Chicago, addressed the Milwaukee Academy of Medicine, December 15, on "Serum Treatment of Pneumonia."——Dr. Fred P. Moersch, Rochester, Minn., addressed the Milwaukee Neuropsychiatric Society, November 19, on "Neuronitis."

WYOMING

Special Meeting of Delegates—New President-Elect.—The house of delegates of the Wyoming State Medical Society, at a special meeting in Casper December 14, chose Dr. Victor R. Dacken, Cody, president-elect of the society to succeed Dr. John R. A. Whitlock, Powell, who died Nov. 23, 1936. Dr. Dacken was graduated from the University of Nebraska College of Medicine, Omaha, in 1919.

GENERAL

Society News.—Dr. Fred W. Bailey, St. Louis, was elected president of the Western Surgical Association at the annual meeting in Kansas City in December. Drs. Owen H. Wangensteen, Minneapolis, and Theodore F. Riggs, Pierre, S. D., were elected vice presidents and Dr. Albert H. Montgomery, Chicago, was reelected secretary. The 1937 meeting will be in Indianapolis.

Social Hygiene Day.—The American Social Hygiene Association announces plans for the first "National Social Hygiene Day," which will be observed February 3. The association will hold its annual meeting on that day and the Social Hygiene Council of Greater New York its fifth annual conference. State and community voluntary organizations interested in the control of venereal disease also plan meetings throughout the country. The national association, which has headquarters at 50 West Fiftieth Street, New York, will be glad to assist in the formation of local programs, according to the announcement.

Radiologists Award Medals.—At the annual meeting of the Radiological Society of North America in Cincinnati, November 30-December 3, the 1936 achievement gold medals were awarded to Dr. Edwin C. Ernst, St. Louis, and Otto Glasser, Ph.D., Cleveland, in recognition of their work in developing a method of x-ray dosage. Dr. Howard P. Doub, Detroit, was named president-elect and Dr. John D. Camp, Rochester, Minn., was installed as president. Vice presidents elected were Drs. Ellis R. Bader, Cincinnati; Paul F. Titterington, St. Louis, and Robert A. Arens, Chicago. Dr. Donald S. Childs, Syracuse, N. Y., was elected secretary-treasurer. The 1937 meeting will be in Chicago in conjunction with the International Congress of Radiology, September 13-17.

Changes in Status of Licensure.—The Eclectic State Medical Board of Arkansas announces the following action:

Dr. Guy I. R. Lawless, formerly of West Memphis, license revoked, November 10, for violation of the Harrison Narcotic Act.

The State Board of Medical Examiners of Florida reports the following:

Dr. Wesley S. Miller, Palatka, license revoked for violation of Harrison Narcotic Act.

Dr. Lemuel A. Carter, Bunnell, license revoked for violating the Harrison Narcotic Act.

The Massachusetts Board of Registration in Medicine announces the following action:

Dr. Henry Daniels, Brockton, license revoked, December 10, for his conviction of the charge of abortion.

Dr. Arthur E. Brides, Stoughton, license suspended for six months, December 10, for gross misconduct in the practice of his profession.

Dr. Barney Edward Sachs, Worcester, license revoked, December 10, because of acting as principal or assistant in the carrying on of the practice of medicine with an unlicensed person.

The Minnesota State Board of Medical Examiners reports the following action:

Dr. Val Do Turner, St. Paul, license revoked, November 7, for referring a woman to an abortionist.

News of Epidemics.—More than 700 cases of scarlet fever with four deaths had occurred up to December 29 in an outbreak at Owego, N. Y., first reported December 26. The disease was traced to distribution of raw milk by a dairyman despite the illness of three members of his family. More than fifty cases were reported in Cohoes, N. Y., December 12; fifty cases with one death in New Bremen, Ohio.——An epidemic of smallpox at Dansville, N. Y., is believed to be under control. There were fifty-five cases in Dansville and adjacent communities. About eighty-five cases have occurred in a recent outbreak at Klamath Falls, Ore.——About twenty-five cases of typhoid fever with three deaths were reported from Cecil, Pa., December 8; the infection was attributed to pollution of the water supply. At Page, W. Va., about twenty cases were reported December 17; the source had not been determined.

CANADA

Dysentery in Saskatchewan—Twenty-Eight Deaths.—Ninety-five cases of bacillary dysentery with twenty-eight deaths occurred recently in the McMahon District near Swift Current, Sask., particularly in the Mennonite village of Rosenhof. It is believed that the infection was brought into the community by persons who returned from Mexico.

Hospital News.—The Winnipeg General Hospital has received a gift of $25,000 from Mr. John A. Forlong to provide new x-ray equipment, especially for high voltage therapy, in memory of his wife.——Dr. James Douglas Galbraith, Toronto, physician on a United Church mission boat, the *Thomas Crosby*, has been appointed medical superintendent of the Bella Coola Hospital, Bella Coola, B. C.

Society News.—Dr. Louis H. Newburgh, Ann Arbor, Mich., addressed the Academy of Medicine of Toronto, December 8, on "Important Advances in Our Knowledge of Kidney Diseases."——Dr. Allen Y. McNair, Vancouver, addressed the Vancouver Medical Association, December 1, on "Tumors of the Large Bowel." Dr. Lavell H. Leeson addressed the association, November 3, on "Respiratory Infections of Childhood."

FOREIGN

Personal.—Sir Norman P. Walker, Edinburgh, has been reelected president of the General Medical Council of Great Britain for a term ending in 1939.——Dr. Dugald Baird, Glasgow, has been appointed regius professor of midwifery in the University of Aberdeen, succeeding Dr. Robert G. McKerron, resigned.

Deaths in Other Countries

Sir John Bland-Sutton, consulting surgeon to Middlesex Hospital, former president of the Royal College of Surgeons, the Royal Society of Medicine and the Medical Society of London, died in London December 20, aged 81.

Government Services

Fines Imposed Under Poison Act

Ten druggists and paint dealers were recently fined in the District of Columbia for selling caustic or corrosive materials in containers not labeled as the Federal Caustic Poison Act requires. Apparently because all the cases were first offenses the court imposed nominal fines of $10 after the defendants had pleaded guilty. The prosecutions were based on sales of oxalic acid, acetic acid and ammonia water.

General Shockley Retires

Brig. Gen. M. Augustus Wroten Shockley, assistant to the surgeon general of the U. S. Army, will retire on his own application, effective February 28, according to the New York *Times*. General Shockley is 62 years of age. He graduated from the Kansas City Medical College in 1898, joining in the same year the Seventh U. S. Voluntary Infantry. He advanced through the various grades in the regular army until he was appointed brigadier general in 1935. He was director of the Field Service and Correspondence School for Medical Officers, U. S. Army, from 1915 to 1917; instructor in the School of the Line and Staff College of the army, 1919-1922, and professor of military hygiene, U. S. Military Academy, 1927 to 1931. He was awarded the Distinguished Service Medal and is an officer of the Legion of Honor of France. He is also the author of the "Outline of the Medical Service of the Theatre of Operations."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 28, 1936.

The National Physique

In the house of lords an important debate took place on the national physique, in which the two medical peers took part. Lord Dawson said that the question transcended all political and social divisions. Britain was not a deteriorating nation, but in our midst there were seeds of deterioration which might quickly be multiplied. The average boy and girl today were taller and heavier than those of former generations, but mere bulk of frame was not evidence of fitness. We were now reaping not only the advantages of medical science and social services but also the disadvantages. A high birth rate and a high death rate brought about a substantial elimination of weaklings. Now that the death rate was falling steadily, nature's method had been rendered nugatory. Weaklings were not eliminated to anything like the same extent. They were given maintenance and treatment and were able even to marry on their maintenance allowance. We were preventing the death of the unfit and had not planned any adequate substitute. It was essential to promote the fit, and on the other hand to take care of the inherently unfit and prevent them from vitiating the race. The unfit should be given a kindly simple shelter, but no effort should be made to raise them above their biologic level, for this would involve the risk of vitiating the race. We had 250,000 mental defectives able to hold their own economically, but unfit as parents. Physicians were being exhorted to think in terms of prevention, and they were striving to do so. Why were they not allowed by law to sterilize and so prevent the birth of children to defectives? He also advocated better physical training. We wanted a British standard of training in our schools. The physical trainer, the mental trainer and the physician should act together. What was gained at school was often lost afterward, because there were no facilities for the youth of the nation to carry out physical exercises. Modern mechanization, where no use was made of the physical attributes of the body, was producing deterioration of physique.

Lord Horder said that fitness for living, fitness for working and fitness for fighting, if it must be, could not be obtained by physical training alone. There were more basic things—food, shelter, air and leisure. Advertisement of what this nation had done in these directions would be wholesome for our self respect and be salutary reading for some other nations, but much remained to be done. Food was fundamental in all questions of fitness. Look after the accessibility of food, and nutrition would look after itself. He was not appalled by the question of expense, if the money was wisely spent on enduring benefits. We had kept the greatest of all our assets—individual liberty. One could not really plan for individual fitness; even the best physician could not make his patients healthy. He approved of centralized physical training, but he hoped that our people would not be regimented. If they were given security and sustenance, their sturdy common sense would do the rest.

Replying for the government, Earl De la Warr, undersecretary for the colonies, said that the house was apparently agreed that there was need for drastic attack on health problems. The government would mobilize voluntary effort plus the local authorities and would help and encourage them to give facilities for the promotion of greater health. If they could provide playing fields and swimming pools and the right type of instructor, these would be used. As to nutrition, if the right food and the right knowledge were available immense strides could be made.

Protection for Retired Physicians

It has been a matter of concern for some time to the Medical Defense Union that on retiring from practice physicians resign their membership, in spite of a letter pointing out that even after retirement they are still liable to attack for alleged misdeeds during practice. The union has therefore made a proposal offering special terms to retiring physicians. Those who have been members for ten years or less may become life members on payment of $15; those who have been members for more than ten years but less than fifteen, on payment of $10, and those who have been members for more than fifteen years, on payment of $5. This arrangement will cease if the member should reengage in practice in any form other than a casual attendance dictated by the circumstances of an accident or emergency. If he reengages he must become reinstated as an ordinary member by paying the usual annual subscription until such time as he again retires, when he will become a life member without further payment. The records of the society show several cases in which an attack was made on a physician after several years of retirement—in one case as long as twenty-two years. But according to recent legislation such attack is now barred after a period of six years from the occurrence.

"Associate Members" of the Medical Association

A need has arisen to meet the needs expressed by certain oversea branches of the British Medical Association for the creation of a class designated "local members." These would be recruited from members of the local profession who are not registrable in Great Britain and therefore cannot become ordinary members of the association. The reasons for the proposal are apparently that the branches should have some control over these practitioners and also that the standard of the profession would be improved. The privileges of such members would be restricted to the receipt of the *British Medical Journal* and attendance at the meetings of the branch. They would have no voting rights. The organization committee of the association thinks that the proper name for such members is "associates." Amendments to the articles and by-laws of the association have been drafted to empower branches to elect as "associates" physicians who are not registered or registrable in Great Britain, the branch electing them to determine what privileges should attach and what subscriptions should be payable. It is felt that this provision might assist in the solution of some of the difficulties at present being experienced in India. The council of the association has agreed that a recommendation on these lines should be made to the representative body. In the case of the Sudan branch it has agreed that, pending settlement of this larger question, the branch should be allowed to elect as a "special class" physicians not registrable in Great Britain, their privileges being to attend addresses and take part in technical discussions and to receive the *Journal*, the subscription not to exceed $7.50 a year, of which not more than $6 would be payable to the central council. Inquiries on these lines have also been received from Aden and Palestine. The problem is due to the existence overseas of physicians legally qualified to practice in their localities but whose qualifications are not registrable in Great Britain and who therefore cannot join the British Medical Association as ordinary members according to its articles of association.

The Smoke Evil

A proposal for new legislation for smoke prevention has been brought forward by the National Smoke Abatement Society, at which the Royal Sanitary Institute, the Institute of Builders and the Department of Scientific and Industrial Research were represented. In his address the chairman said that the only effective method of controlling smoke from non-industrial premises was by the establishment of smokeless zones

in cities. In these, smoke emission should be made a legal offense. The central areas of cities could thus be cleared of smoke emission. They could not yet legislate for the smokeless city as a whole. The same principle could be applied to other selected areas, for example in the vicinity of hospitals, parks, airdromes and architectural monuments. The areas concerned would be mainly occupied by offices and business premises, where the coal fire was almost an anachronism. There need be no difficulty about hotels or clubs, as their cooking was mostly done by gas or electricity. There was already sufficient smokeless fuel on the market to supply open fires in public rooms. There was little hope of legislation for the abatement of smoke from dwelling houses, but the rapidly increasing use of gas and electricity for cooking was diminishing smoke emission from kitchen ranges. The open fire in the sitting room remained the crux of the problem. The popular demand for at least one open fire must be conceded. The line of attack appeared to be elimination by degrees of raw bituminous coal and the substitution of smokeless fuels, to which a slow but definite change was taking place without any compulsion.

PARIS

(From Our Regular Correspondent)

Nov. 30, 1936.

Bureau to Provide Temporary Substitutes for Practitioners

In France, the interests of the profession are looked after by the Federation of Medical Syndicates or Unions, in which each departmental syndicate has a representative. The federation has recently purchased a building in the center of Paris and has opened an office which will aim to provide practitioners who desire a well qualified licensed member of the profession to take charge of their practice temporarily with all the necessary information. Any practitioner who desires a temporary substitute can obtain one by (1) stating the type of practice (internal medicine, general surgery or surgical specialties) and whether the substitute should be a licensed physician or a student who has passed a sufficient number of examinations to permit serving as a substitute or (2) indicating the location, remuneration and length of time during which the practitioner expects to be absent. The physician or qualified student who wishes to serve as a substitute must file his credentials with the office and agree not to begin practice in a territory that is less (in country districts) than 25 miles away from the place in which he replaces a practitioner. In this way the federation assumes the responsibility of providing substitutes whose records have been thoroughly investigated. This will avoid the complaint now existing of the employment of foreigners who do not have the necessary state license to practice and of medical students who are not qualified to act as substitutes. The work of the federation in relation to its proposed cooperation with the public health authorities has already been referred to. A plea is constantly being made by the secretary of the federation for united efforts on the part of the profession in combating the effort of the present government to create state medicine.

A Lecture on Postoperative Thrombosis

In the October 10 *Progrès médical* appears a lecture on postoperative thrombosis delivered in Ghent, Belgium, by Prof. René Leriche of Strasbourg, in which the theory of Havlicek as to the etiology of this complication is discussed. The theory of Havlicek is based on the following:

1. The velocity of the circulation is a function of billions of anastomoses which permit the blood to pass directly from the arteries into the veins.

2. There are innumerable interstitial anastomoses in the liver between the portal vessels and those draining into the vena cava.

3. As the result of exertion in the postoperative period, the blood in the portal vein can flow back into the radicles of the vena cava as far as the femoral vein.

4. The blood in the portal circulation coagulates that in the systemic veins.

5. Postoperative slowing up of the circulation favors coagulation.

6. Postoperative thrombosis is due to the reflux of the blood from the portal circulation into that of the vena cava.

Now Nolf has shown that the blood in the vessels during life contains all the factors necessary for coagulation but that they are in a colloidal state of stability. This means that there is no coagulation within the vessels under normal conditions. Coagulation takes place outside the vessels under the influence of the tissue juices, white blood cells and blood platelets in the presence of calcium or when there is an extreme degree of slowing up or a complete arrest of the circulation. One should not confuse thrombosis and coagulation. Clinicians are not as aware of this as are physiologists. Thrombosis is not an anomaly of coagulation. The two processes are not the same. When a vessel is thrombosed, coagulation is a secondary phenomenon at the site of the thrombosis, the latter being primary. Coagulation is a phenomenon of precipitation, under the form of fibrin, of an albuminous body which is found in the normal blood as fibrinogen, the latter being transformed into fibrin. Thrombosis is essentially a phenomenon of agglutination of blood platelets, the fibrin playing only an insignificant part. If one wishes to know why thrombosis takes place, it is necessary to study the question of agglutination of platelets. If one admits the influence of the blood in the portal circulation on that in the vena cava as Havlicek claims, it is necessary to prove that the portal blood can precipitate the platelets in the other system. All that is known at present is that coagulation never occurs in blood vessels during life unless there has been a precedent thrombosis, even when there is slowing up or complete arrest of the circulation. When the circulation is artificially slowed up, the leukocytes first and later the platelets are seen along the periphery, but there is never agglutination of the platelets. There is a sudden marked increase of platelets during the first few days after operation, returning to normal toward the end of the second week. Now, in certain patients the increase in the number of platelets after operation is exceptionally high and does not recede at the usual time. Whether this can explain some cases of postoperative thrombosis is not proved, but it opens up a field for study. Even if that were proved, it would still be necessary to determine why certain operations stimulate excessive platelet production. Clinical observations show that thrombosis occurs as a rule after operations, especially abdominal, in an aseptic field. During the World War, thrombosis was practically never observed in infected wounds, whereas thrombosis appears like a bolt of lightning from a clear sky after clean appendicitis, hernia and uterine fibroid operations; hence infection cannot be considered as the cause of thrombosis in such cases. Rough handling of muscle tissue certainly favors postoperative thrombosis, yet it seems paradoxical that one never sees a phlebitis following the radical operation for cancer of the breast. One observes thrombosis less frequently in cases in which drainage has been employed than when the operative incision has been closed completely. Leriche is of the opinion that operations performed under ultraviolet or infra-red rays as suggested by Paschoud may lessen the frequency of postoperative thrombosis. Following a visit to the clinic of Paschoud, operations at the Strasbourg University clinic, of which Leriche is the head, are now being performed under these conditions and the use of the infra-red rays during operation has been satisfactory.

Death of Dr. Amédée Borrel

American bacteriologists who have studied at the Pasteur Institute here will regret to learn of the death of Dr. Amédée Borrel at the age of 69 years. Since leaving Paris he had occupied the chair of bacteriology and hygiene at the University of Strasbourg. In 1892 he entered the laboratory of Prof. Elie Metchnikoff at the Pasteur Institute of Paris and soon became associated with Professor Roux in the courses in bacteriology in which many foreigners participated. Later (1894) he became one of the chief co-workers of Pasteur and with Calmette was the first to prepare a serum against the plague. In 1898 he published an important article on cerebral tetanus and proposed the injection of antitetanic serum by the intracerebral route. Since then Borrel had made a number of important contributions on experimental tuberculosis, tissue culture and the rôle of parasites in certain cancers. His work on the last named was confirmed by Fibiger and Bridie.

BERLIN

(From Our Regular Correspondent)

Nov. 2, 1936.

Convention of German Physicians and Scientists

The ninety-fourth annual convention of the Gesellschaft Deutscher Naturforscher und Aerzte was held in September as usual at Dresden. Each of these conventions is accustomed to have a patron saint, usually selected from the history of medicine; this congress met under the protection of C. G. Carus, a physician, scientist and philosopher who flourished during the first half of the nineteenth century and who was the most daring representative of the "romantic medicine" of that period. The school of "biologic medicine," which exercises so powerful an influence in contemporary Germany, sees in Carus one of its most important precursors.

Most impressive was the address of this year's president, the Berlin surgeon Professor Sauerbruch, on "The Problems of Medicine and of Natural Science." Within the scope of Sauerbruch's remarks were included all the controversial points and problems that beset the German medical world today. In addition he took up the question of the place of the university and of natural science in the new state, with particular reference to the investigation of causes. This speech assumed the character of a confession of faith. Sauerbruch, for example, called attention to the fact that the criticism of the universities and their methods which was rife during the first period of National Socialist domination has now happily begun sharply to subside. The distinctive character of scientific work is now beginning to be understood once more. "Accordingly, now is the time to reestablish that state of tranquillity which is now and always will be the fundamental condition for scientific activity." And Sauerbruch uttered the further significant remark: "Reason alone is not enough; it must be supplemented by a reaction of the spirit to the unconscious patterns of nature." Then in conclusion he warned against falling into the reverse error. "The physician senses the unity of the mysterious forces of nature but the scientific disciplines he feels as particulars. From the moment he seeks to create one special science of the latter, all will be false. . . . A new medicine in the sense of something that has never yet existed is certainly not to be recommended." The regular physicians through understanding of Nature Medicine have come to adopt the methods of the latter in conjunction with older procedures. "Meanwhile, to obtain accurate results, we need data that can only be acquired by exact observation." He then quoted a dictum of Paracelsus, who is so frequently cited as an authority by present-day Germans, and this particular quotation must have caused no end of surprise among the audience or at least among the leading authoritative physicians present; it ran: "If thou wouldst not learn aught of the science of medicine, thou art an enemy of the people." Sauerbruch went on to formulate the principle of scientific freedom and self reliance as follows: "With service to the people alone, science cannot exhaust herself. Her domain is not only of this world. The temporal and the eternal must be harmoniously combined in science; only then can science adhere to her unchanging principle: to seek the truth with sincerity." Sauerbruch closed his address with a "final confession of faith," a word to the youth of the universities: "Work and experience," he said, "must be tested and coordinated by the spirit and the understanding. The concept of the whole is designated by that somewhat overworked term 'weltanschauung.' But only the tried and tested man of maturity can be said to possess a weltanschauung and such an acquisition is not within the reach of the young. Youth possesses openmindedness, energy and hope. But the capacity for working, knowledge and experience, the insight into those realms of science that are to be comprehended only by the intellect, are also necessary." Old and young must collaborate in the performance of the most difficult tasks and deeds of genuine service.

The foregoing significant and courageous utterance, a confession of faith in the true scientific spirit by a leader of science has produced a tremendous understandable sensation both in Germany and abroad, particularly since such candid expression of opinion has become a rarity within the Third Reich. This speech of Sauerbruch's has received only fleeting mention in the German medical press. A few vague comments have appeared which can scarcely be said to show any sympathy for the main thesis of Sauerbruch's courageous utterance and which in some instances flatly reject it (as in the *Deutsches Aerzteblatt*, official organ of the entire German medical profession). Sauerbruch's address stands out as the "high spot" of this convention.

MEDICINE AND BIOLOGY

The topic of the first general session was "Medicine and Biology." Ludwig Aschoff of Freiburg-in-Breisgau provided a discussion of pathology and biology in which he referred to the fact that the demarcations between animate and inanimate matter have been obliterated by advances in the knowledge of the type of ultramicroscopic virus and chemical agents which form in the nuclei of cells and which conduce to cancer. Pathology, however, ought not to be regarded as a purely natural science, since the concept of evaluating life as healthy or diseased must underlie the pathologist's exact observation of phenomena. Aschoff believes that, owing to the brevity of the period of academic preparation, instruction in the recognition of diseases is of more importance than instruction in their treatment (this opinion of Aschoff's is not subscribed to by pathologists generally).

Among other speakers on the topic was Karl Kötschau of Jena, who once again said his say on behalf of Nature Medicine.

In the medical section, Franz Volhard of Frankfort-on-the-Main as an internist and Rudolf Thiel also of Frankfort as an ophthalmologist discussed the importance of visual examination for the understanding of disturbances due to hypertension and to diseased kidneys.

In the section on internal medicine the question of hyperthyreosis was the principal topic. Erwin Gohrbandt of Berlin pointed out that preliminary treatment with iodine has made possible a considerable decrease in the postoperative mortality. If preliminary iodotherapy has been possible, Gohrbandt performs a one-stage intervention; in the absence of this preliminary treatment a two-stage operation is performed. Sudden deaths in improperly prepared operative cases he attributes to a rapid withdrawal of flushed out toxin (somewhat as in morphinism and alcoholism).

Hans-Wilhelm Bansi, one of Gohrbandt's co-workers, discussed the limitations of internal therapy in hyperthyreosis. Operative treatment is indicated if any of the following conditions are presented: paroxysmal tachycardia or absolute arrhythmia traceable to a cardiac lesion (but not an ordinary cardiac acceleration), cardiac dilatation, a hepatic lesion, compression of the trachea, manifest exophthalmos, incipient coma of exophthalmic goiter often appearing in the guise of myasthenia, and finally if the disorder has been present and has advanced for a period of from one year to one and a half years. Slightly increased basal metabolism is a contraindication of surgical treatment.

Ferdinand Sauerbruch contributed some important observations on this topic. He feels that severe exophthalmic goiter is virtually always attributable to a psychic trauma, and especially to a sexual complex in the widest application of the term, to childlessness, for example. In some cases the etiologic factors are to be sought in the domain of the endocrines. Psychogenic cases should receive psychic and climatic treatment, but at the same time an indication for operation, a cardiac lesion, for example, should not be overlooked. Sauerbruch, like other clinicians, has wholly dispensed with radiotherapy; he found that it was rarely of material help and that its use rendered a subsequent intervention more hazardous. Operation should always be radical and only a small portion of the thyroid allowed to remain. Thyroidectomy must still be considered a major operation. Thyroxine has been recommended as a postoperative adjuvant.

Brief mention remains to be made of a session at which the question of virus was discussed. Kurt Herzberg, Düsseldorf hygienist, spoke of the great progress that has been made by the use of the most finely porous filters and by the further development of the types of virus cultures which are found only in living cells. It has also been possible to stain these agents and to visualize their propagation within the cells and even to measure their size (from 10 to 175 microns). Whether the virus should be considered a living substance is debatable, yet its ability to divide, for example, suggests an affirmative supposition. According to Otto Waldmann of Insel Riems, progress has also been made in the study of influenza and specifically in the discovery of a transmissible virus that, together with the influenza bacillus of Pfeiffer, produces influenza in man. It has been possible to cultivate this virus in vitro.

ITALY

(From Our Regular Correspondent)

Oct. 31, 1936.

Duodenitis and Splenomegaly

Professor Greppi in a lecture before the Accademia Medica of Rome spoke on several cases of suppuration of the spleen and sometimes also of the liver, complicated by duodenitis. The speaker discussed the significance of the association of gastroduodenal and splenic diseases. Professor Frugoni of Rome asked if the liver is not of the same or of more importance than the spleen in the origin of duodenal disease. He said that in the majority of cases of hemorrhage, associated with chronic splenomegaly, the anatomic examination and the clinical symptoms (violent vomiting of blood) seem to point out that the hemorrhages are of esophageal and gastric origin rather than of duodenal.

Professor Matronola said that the roentgen examination of a patient showed the presence of a duodenal niche. In this case the presence of duodenal ulcer was suspected and the patient had intestinal hemorrhage. During operation no ulcer was found. The spleen was in a pathologic condition, and it was removed. The anatomic diagnosis could not be made by the histologic examination of the spleen and of a large ganglion, which was removed during the operation. At present, the patient is suffering from slight jaundice, and he is under observation.

Professor Greppi said that he did not consider the association of the mentioned diseases as a new syndrome. He called attention to the fact that duodenal and pyloric disturbances frequently complicate splenomegaly and hepatomegaly in the same manner in which esophagocardial circulatory alterations occur. Duodenal and pyloric complications are associated with dyspepsia, gastric disturbances and hemorrhages. They originate on a congestive phlogosis of the mucosa and may simulate duodenal ulcer.

Gastric Ulcer of the Lesser Curvature

Professor Durante of Genoa gave a review of a large number of cases of ulcer of the lesser curvature treated by surgery in the Ospedali Civili of that city. The operation of selection is gastric resection followed by reconstruction. There are, however, certain patients who cannot stand this type of operation because of poor general conditions. In these cases performing of a simple section of the vascular arcade of the juxta-ulcerous curve, a wedged resection with or without gastro-enterostomy or a longitudinal resection is indicated. The speaker made a comparative study of the results of wedged and longitudinal resection. He found that the results of resection in a saddle form, without gastro-enterostomy, are unsatisfactory. Frequently they are complicated by stenosis because of the proximity of the pylorus to the cardia or by the slight elevation of the pyloro-antral segment with consequent gastric dilatation and diminution of motility. In some cases the ulcer recurs at the segments near the point at which resection was made.

Society Reunion

The Società Medico-Chirurgica of Pavia met in that city under the chairmanship of Professor Pensa. Professor Sala spoke on the collection of unpublished letters of Antonio Scarpa, the anatomist. He presented a motion on publishing Scarpa's letters in celebration of the fiftieth anniversary of the foundation of the society.

Dr. Pellegrini discussed the behavior of the cardiac output during experimentally induced fever. When the latter is high a condition of cardiovascular insufficiency appears which is analogous to vascular collapse rather than to cardiac hypodynamia. This behavior of the cardiac output is frequent although it may be lacking in some cases.

Drs. Ferrari and Bertola discussed some of the organic modifications induced by pneumoperitoneum. When small amounts of air are injected by the common technic, the modifications of circulation and respiration are slight and transient, the pulse rate diminishes, arterial pressure frequently diminishes and venous pressure does not change. Some of the organic changes that follow pneumoperitoneum can be included within the picture of transient and incomplete shock. The speakers reported, also, results of studies on the concentration of proteins in the blood serum and the velocity of sedimentation of erythrocytes. The former diminishes and the latter increases after performance of pneumoperitoneum. The changes of the proteins in the blood and of the velocity of sedimentation of the erythrocytes may be considered within a picture of hemoclastic crisis.

Congress of the Medical Press

The Fourth International Congress of the Medical Press was held in Venice, presided over by Dr. Davide Giordano, a senator. The minister of national education was present. The first official topic discussed was "History of the Medical Press in Latin Countries." Official speakers on this topic were the delegates from Belgium, France, Spain and Switzerland. Professor Pazzini, the Italian delegate, described

three periods in the development of medical literature: mixed literature from 1668 to 1773, general medical literature from 1773 to the first half of the last century, and specialized medical literature from the second half of the last century to the present.

The second official topic was "Social Functions of the Medical Press." Speakers for this topic were Professor Le Sage, of the Union Medicale of Canada, and Dr. Olivaro, who is the author of the constitution of the Association of the Italian Medical Press. The third topic was "Principles of Teaching and of Practicing Medicine." Professor Perez of the University of Rome reviewed the arrangement of medical studies, postgraduate courses and services of sanitation in Italy. When the discussions of the official topics were over the following motions were given: First that Latin and Greek be considered compulsory subjects of medical studies. Second, that postgraduate courses, for obtaining a diploma of specialization, be compulsory for practicing medical specialties.

Indexes of Food Consumed

According to statistics of the Istituto Centrale di Statistica, the quantity and variety of food consumed by the average Italian population during the last ten years has improved. The consumption of natural products for every man during a year increased, from 1926 to 1935, as follows: fresh rough vegetables from 40 to 54.4 Kg., fresh fruit from 28 to 37.2 Kg., and acid fruits from 8.6 to 10.9 Kg. The consumption of fresh soft vegetables, fresh fish, milk and milk products increased also. The consumption of milk for every man during a year increased from 1926 to 1935 from 24.6 to 34 liters. The consumption of cereals and meat showed no great changes.

Deaths

Prof. Francesco Radaeli, head of the Clinica Dermosifilopatica of the Genoa University and a well known dermatologist, is dead. He wrote important articles on Kaposi's hemorrhagic sarcoma, which he called angio-endothelioma, and on the infectious etiology of pemphigus; also a book on cutaneous diseases, of which four editions have already been published. He was the founder of a clinic in Genoa in which a school of dermatology was established. Several of his pupils in this school are teachers in Italian universities and others are directors in dermatologic clinics.

NETHERLANDS

(From Our Regular Correspondent)

Nov. 16, 1936.

Transmission of Paratyphoid Infection by Ducks

A. Charlotte Ruys in the *Nederlandsch tijdschrift voor geneeskunde* calls attention to the danger of paratyphoid infection transmitted by ducks either through the eggs or through the birds themselves.

The author reports the case of a child stricken with type B paratyphoid after having played with two ducklings, one of which was taken ill and died. The surviving bird was placed under observation at the laboratory and there it remained apparently well for six days. After an examination of the feces had proved negative, the duckling was destroyed. Postmortem examination demonstrated that the animal had been a healthy carrier of Bacterium paratyphosum B (Aertrycke). The bacilli were obtained in cultures of the intestinal contents.

Last summer in Amsterdam several cases of food poisoning were reported among families the members of which had partaken of duck soup. In four families investigated there were sixteen cases of poisoning, one fatal. Bacterium paratyphosum B (three times of the Aertrycke type and once of the Gaertner type) was detected in the stools of all persons who had ingested the soup. A special investigation proved, moreover, that the soup had been the sole source of the illness. In each instance it had been allowed to simmer over a slow fire and the boiling process had sufficed to destroy all the pathogenic organisms in the broth, since none were found in the residues examined at the laboratory. But boiling had not sufficed to destroy the bacilli within the flesh of the bird. This duck meat had all been consumed and could not be examined. The author cites a somewhat analogous case in which the ingestion of chicken broth was followed by manifestations of illness. Examination of the broth itself disclosed no pathogenic organisms but it was possible to culture the bacilli from a chicken foot which had remained uneaten and the interior of which was nearly raw.

Lead Poisoning and Tobacco

In the *Nederlandsch tijdschrift voor geneeskunde* appears a discussion by Jordans, Zijlmans and Broos of lead poisoning among workers in the tobacco industry. The authors had the opportunity to examine several groups of workers in various cigar factories. The general appearance of a large number of the employees denoted a state of poor health, and this could not be explained on the basis of unfavorable working conditions (the hygiene of cigar factories has undergone vast improvement) or by the fact that this type of employment does not require great physical stamina on the part of the worker (the vast majority of 4,000 cigar makers examined were of sound constitution). Chronic nicotinism was likewise ruled out, as none of the persons observed presented any symptoms of nicotine intoxication. The authors concluded that the workers in question were suffering from lead poisoning, although such an intoxication in connection with the manufacture of cigars had never before to their knowledge been described. Six hospitalized cases are reported in detail. An investigation initiated by the authors demonstrated lead poisoning in at least 25 per cent of all the workers.

The source of this intoxication ostensibly was the sheets of zinc on which the cigars were cut. These sheets contained about 1 per cent of lead. The law should require that these metal sheets be replaced by hard wooden plaques; such a substitution would in no way impede the technical process of manufacture.

Mortality Statistics

Statistics recently published by the central statistical bureau show that from 1840-1849 to the year 1934 the death rate declined from 26.56 per thousand of population to 8.41. Such a decrease evidences the effectiveness of public health measures and the improvement of living conditions in the Netherlands.

Fatalities among nurslings now constitute 4 per cent of all recorded deaths. In the decade from 1880 to 1889, 18 per cent of all infants born alive died while still in the nursling stage whereas in 1934 the corresponding figure was 4 per cent. This decline attests the influence of improved infant feeding.

The mortality of infants in 1934 should be considered an all-time low. The birth rate, on the other hand, tends to decline in both urban and rural areas. The various provinces of the kingdom exhibit individual differences in this regard. In the province of Friesland the infant mortality is quite low and 58 per cent of the survivors attain the age of 65. In the province of Limburg, the infant mortality is extremely high and but 40 per cent of the survivors attain the age of 65. The corresponding figure for the entire kingdom is 49 per cent.

Among causes of death tuberculosis no longer plays a preponderant part. Diseases of the heart and blood vessels are on the increase; they cause 14 per cent of all deaths (the result chiefly of the abuse of nicotine and of the nervous spirit of the times). The largest single cause of fatalities is cancer, which was responsible for 15 per cent of all the deaths recorded in 1934.

Violent deaths accounted for 3 per cent of the total; by far the largest number of such fatalities were due to traffic accidents involving automobiles.

The Antituberculosis Campaign

Included in the annual report of the Antituberculosis Society of Amsterdam is a résumé by Mr. Heynsius Van Den Berg of the society's activities during 1935.

The results have been gratifying. The mortality from all forms of tuberculosis has declined from 4.88 to 4.34 per 10,000 of population and the mortality from pulmonary tuberculosis has declined from 3.54 to 3.4.

In 1918 the corresponding figures were still 22.65 and 18.03, respectively.

The present figures for Amsterdam (5.25 and 3.75) are among the lowest in the world and are still below the rate for the entire kingdom.

An extended examination was made in the course of the same year (1935) in order to ascertain the earliest stage of life at which tuberculosis may be detected. The subjects were infants and young children aged from 0 to 4 years. Establishment of a tuberculous condition was possible in 50.8 per cent of the children.

Miss Ruys has been able to determine at Amsterdam that in 12.9 per cent of tuberculosis cases among children, infection from bovine bacilli has taken place.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 1, 1936.

Action of Acetylcholine

Prof. A. Lanari, in a lecture before the Sociedad Argentina de Biología, reported on the reactions of the muscles of the forearm and the hand following the injection of 0.04 Gm. of acetylcholine in the humeral artery at the level of the fold of the elbow. In muscles with the electrical reaction of degeneration, a contracture that lasts for half a minute takes place. In hemiplegic pyramidal contracture the contracture in flexion is exaggerated. In extrapyramidal rigidity there is either no contracture or only a slight flexure of the hand and the fingers. In myotonic myopathy a local intense contracture is obtained. In normal persons and in progressive muscular dystrophy no contracture takes place. In normal persons and in persons who recently have had sympathectomy performed, local pain, rubor, perspiration and increase of the arterial oscillations take place. In some persons who have had sympathectomy performed several months before administration of acetylcholine injection, pain and slight rubor persist, perspiration is lacking and the arterial oscillations diminish (which shows vasoconstriction of the arteries and arterioles).

Hospital Physicians To Be Paid

The campaign carried on by more than 2,000 physicians of Buenos Aires who up to the present have given their services to the public in the hospitals of the city without any remuneration has succeeded. A bill has been approved by the national congress by which an allowance of 5,000,000 pesos (about $2,500,000) will be given every year from now on to pay physicians in public hospitals for the work they do.

Society News

The first Argentinian Congress of Ophthalmology, which was organized by the Sociedad Argentina de Oftalmologia and presided over by Dr. Damel, took place recently in Buenos Aires. Ophthalmologists from Brazil, Uruguay and Bolivia were present at the congress.

The second Medico Gremial Argentinian Congress took place in Buenos Aires, October 30. The following topics were discussed: economic distress of physicians, biologic conditions of the average population (food, salary, housing and work), unification and coordination of medical services, societies of mutual insurance and of medical cooperation, social work and medical studies. The problems that originate in the plethora of physicians and in the interference of the state in controlling the administration of medical services were discussed. The meetings lasted longer than was expected because of the many articles presented and the breaking in of speakers with political or social views into the discussions.

The eighth Argentinian Congress of Surgery took place in Buenos Aires, October 4. Dr. Alejandro Ceballos was the chairman. An exposition with surgical instruments, items of pathologic anatomy and roentgenograms in connection with the subjects discussed was opened. The topics discussed were renal lithiasis, tuberculosis of female genital organs and cancer of the rectum.

Personals

Professors Castex, Houssay, Arce and Martínez have been appointed members of the Academia Rumana of Medicine.

Prof. B. A. Houssay has been given the degree of Doctor honoris causa by Harvard University. Dr. Houssay was invited to Cambridge to participate in the celebration of the three hundredth anniversary of the university. He has also been given the degree of Doctor honoris causa by the University of São Paulo and named one of the seventy members of the new group Pontificia Academia Scientiarum of Rome.

The national prizes of medical sciences of 1931 and 1934 were awarded as follows: The first prize, 20,000 pesos (about $10,000) to Prof. Pedro Belou for his studies of the arterial system. The second prize of 12,000 pesos (about $6,000) was given to Prof. Enrique Hug of Rosario for his studies on hydrocyanic poisoning and its treatment. The third prize of 8,000 pesos (about $4,000) was given to Dr. O. Ivanissevich for his work on hydatidosis of the bones.

Drs. Mario Soto, Osvaldo Loudet and Marcelino Sepich were appointed professors of pharmacology and therapeutics, psychiatry and neurology, respectively, at the new faculty of medicine of La Plata.

Deaths

Dr. Juan Carlos Navarro, ex-president of the National Academy of Medicine and extraordinary professor of pediatrics, is dead.

Dr. José Borda, ex-professor of psychiatry and former director of the Hospicio de las Mercedes and member of the National Academy of Medicine, is dead.

Marriages

JAMES HAROLD MACART, East Orange, N. J., to Miss Beatrice Elsa Birkenhauer of Maplewood, in Newark, Sept. 12, 1936.

ALMER RUSSELL AANES, Red Wing, Minn., to Miss Irene Lucille Persgard of Duluth, in Minneapolis, Sept. 26, 1936.

SAMUEL M. BEALE JR., Sandwich, Ont., Canada, to Miss Mabelle H. Slayton in New York, Oct. 2, 1936.

JOHN RAYMOND MALLOY, Brattleboro, Vt., to Miss Bernice Harriet O'Neal of Waterbury, Conn., recently.

RUSSELL EVAN MORGAN, Annville, Pa., to Miss Elizabeth Johanna Wenzinger of Philadelphia, recently.

EDWARD LEE GILBERT to Miss Ernestine Flynt, both of Winston-Salem, N. C., in October 1936.

LEWIS W. GLATZAU to Mrs. Winnifred McDonald, both of Daytona Beach, Fla., Nov. 12, 1936.

RUDOLPH FARMER, State Park, S. C., to Miss Bernice Turner in Columbia, Sept. 25, 1936.

JAMES FORTIN MINNES to Miss Margaret Whitehead, both of Baltimore, Oct. 3, 1936.

Deaths

Henry Stanley Plummer ✠ professor of medicine, Mayo Foundation, Graduate School, University of Minnesota, died, January 1, at his home in Rochester, Minn., of cerebral thrombosis, aged 62. Dr. Plummer was born in Hamilton, Minn., March 3, 1874. He took premedical courses at the University of Minnesota and received the M.D. degree from Northwestern University Medical School, Chicago, in 1898. After practicing medicine in Racine, Minn., from 1898 to 1901, he went to the Mayo Clinic in 1901, where he became chief of the division of medicine. In the Mayo Clinic his genius for organization and his flair for mechanics had the fullest opportunity for development. In the construction of the new clinic building he labored indefatigably and many of the remarkable innovations in efficiency of operation were conceived by him. He was chairman of the Section on Practice of Medicine of the American Medical Association, 1920-1921; a past president of the American Association for the Study of Goiter; member of the American Association for Thoracic Surgery, the Central Society for Clinical Research, Association of American Physicians, Association for the Study of Internal Secretions, Medical Library Association and the American Public Health Association; fellow of the American College of Physicians. He was the author and co-author of numerous articles dealing with the physiology and diseases of the thyroid gland. In 1935 he was awarded the honorary degree of doctor of science by Northwestern University. He was a genial philosopher in medicine, a profound thinker whose views were respected everywhere.

HENRY STANLEY PLUMMER, M.D., 1874-1937

Samuel William Schapira ✠ New York; University of the City of New York Medical Department, 1895; member of the American Urological Association; formerly professor of clinical surgery, Fordham University School of Medicine; instructor of genito-urinary diseases at the New York Post-Graduate Medical School, 1903-1913; served during the World War; at various times on the staffs of the Beth Israel Hospital and Dispensary, Sydenham Hospital, People's Hospital and City Hospital, New York, and the Sea View Hospital, Staten Island; aged 64; died, Nov. 21, 1936, of heart disease.

Arthur Lynn Bryan, Muscatine, Iowa; University of Illinois College of Medicine, Chicago, 1914; past president of the Muscatine County Medical Society; formerly health officer of Muscatine; on the staff of the Benjamin Hershey Memorial Hospital and formerly on the staff of the Bellevue Hospital; aged 50; died, Nov. 12, 1936, in the Methodist Hospital, Madison, Wis., of heart disease, embolus of the right leg, and gangrene.

Edward Cary Rushmore ✠ Tuxedo Park, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1886; past president of the Orange County Medical Society and the First District Branch of the Medical Society of the State of New York; health officer; surgeon for the Erie Railroad; medical director of the Tuxedo Memorial Hospital; aged 74; died, Nov. 2, 1936.

Thomas Hawley Rockwell ✠ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; for many years chief medical director of the Equitable Life Assurance Society; past president of the Association of Life Insurance Medical Directors of America; aged 71; died, Nov. 2, 1936, in the Fair Oaks Sanatorium, Summit, N. J., of chronic nephritis.

Andrew MacFarlane ✠ Albany, N. Y.; Albany Medical College, 1887; past president of the Albany County Medical Society; formerly professor of physical diagnosis and medical jurisprudence at his alma mater; served during the World War; on the staff of St. Peter's Hospital and formerly on the staffs of the Albany Hospital and the Memorial Hospital; aged 73; died, Nov. 10, 1936, of coronary occlusion.

Wayland Ray Palmer, Hollidaysburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1902; past president of the school board; medical examiner for the selective board during the World War; on the staffs of the Altoona and Mercy hospitals, Altoona, and the Nason Hospital, Roaring Spring; aged 59; died, Nov. 7, 1936, at a hunting camp near Petersburg.

Hugh Owen Jones, Chicago; Northwestern University Medical School, Chicago, 1902; member of the Illinois State Medical Society; assistant to the president and chief of the medical service, city health department, and formerly assistant and acting health commissioner, and chief of the division of child hygiene; aged 61; died, Dec. 24, 1936, of bronchopneumonia.

Samuel Boughton Whitman Leyenberger ✠ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1901; fellow of the American College of Surgeons; on the staff of St. Michael's Hospital and on the adjunct staff of the Presbyterian and the Hospital of St. Barnabas; aged 57; died, Nov. 4, 1936.

Harold William Reilly, East Bloomfield, N. Y.; University of Buffalo School of Medicine, 1921; for many years health officer of East Bloomfield; on the visiting staff of the Frederick Ferris Thompson Hospital, Canandaigua; aged 41; died, Nov. 18, 1936, in a hospital at Cleveland, of malignant hypertension following adrenal sympathectomy.

Thomas Charles Lippman, Southampton, N. Y.; Cornell University Medical College, New York, 1903; member of the Medical Society of the State of New York; on the staff of the Southampton Hospital; aged 59; died, Nov. 11, 1936, in the New York Post-Graduate Hospital, New York, following an operation for disease of the gallbladder.

Charles John Haines, Hallstead, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1925; member of the Medical Society of the State of Pennsylvania; fellow of the American College of Physicians; aged 39; died, Nov. 3, 1936, in the Binghamton (N. Y.) City Hospital, of a self-inflicted bullet wound.

Russell C. Keizer, North Bend, Ore.; University of Oregon Medical School, Portland, 1918; member of the Oregon State Medical Society; for many years county coroner; member of the school board; medical director and president of the Keizer Brothers Hospital; aged 52; died, Nov. 4, 1936, of cerebral hemorrhage.

Meyer R. Robinson ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1900; fellow of the American College of Surgeons; attending gynecologist to the Beth Israel Hospital, chief gynecologist and obstetrician to the Beth Moses Hospital; aged 61; died, Nov. 2, 1936, of carcinoma of the lung.

Hugh James Polkey ✠ Chicago; Rush Medical College, Chicago, 1903; assistant clinical professor of surgery (genito-urinary) at his alma mater; member of the American Urological Association; on the staff of the Presbyterian Hospital; aged 59; died, Nov. 14, 1936, of arteriosclerosis and coronary thrombosis.

John Henry Kimble, Plymouth, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; member of the Michigan State Medical Society; served

during the World War; aged 69; died, Nov. 15, 1936, in the Harper Hospital, Detroit, of carcinoma of the bladder.

James Francis Lawson, Chicago; Howard University College of Medicine, Washington, D. C., 1907; served during the World War; member of the city board of health; aged 51; died, Nov. 3, 1936, in the Veterans Administration Facility, Hines, Ill., of hypertension and valvular heart disease.

Bertram Goldstein, New York; University and Bellevue Hospital Medical College, New York, 1923; member of the Medical Society of the State of New York; on the staffs of the Gouverneur Hospital and the Beth David Hospital; aged 37; died, Nov. 19, 1936, of pulmonary tuberculosis.

John Robert A. Whitlock ✠ Powell, Wyo.; Medical College of the State of South Carolina, Charleston, 1899; president-elect and formerly secretary of the Wyoming State Medical Society; president of the Whitlock Hospital; aged 64; died, Nov. 23, 1936, of cerebral hemorrhage.

William B. Percival, Pasadena, Calif.; Medical College of Ohio, Cincinnati, 1883; professor of chemistry and toxicology, University of Southern California School of Medicine, Los Angeles, from 1884 to 1885; aged 75; died, Oct. 7, 1936, of paralytic ileus and chronic myocarditis.

John Walter Hardy Jr. ✠ Joplin, Mo.; Northwestern University Medical School, Chicago, 1929; secretary of the Jasper County Medical Society; on the staffs of St. John's and the Freeman hospitals; aged 33; died, Nov. 8, 1936, of injuries received in an automobile accident.

Francis Adams Barber, Clear Lake, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1911; member of the Iowa State Medical Society; aged 70; died, Nov. 4, 1936, in Rochester, Minn., of cholecystitis with stones and pulmonary atelectasis.

Robert William Petrie ✠ Murphy, N. C.; University of Maryland School of Medicine, Baltimore, 1903; fellow of the American College of Surgeons; aged 60; owner and medical superintendent of the Petrie Hospital, where he died, Nov. 17, 1936, of acute myocarditis.

Walter Thomas Woolley ✠ Seattle; Harvard University Medical School, Boston, 1904; for many years district chief medical examiner of the New York Life Insurance Company; aged 59; died, Nov. 9, 1936, in the Maynard Hospital, of cerebral hemorrhage.

Henrietta Pauline Johnson, Bath, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1892; formerly medical inspector in public schools in New York; aged 96; died, Nov. 1, 1936, of chronic myocarditis.

Arthur Edmund Southward, Seattle; Bellevue Hospital Medical College, New York, 1896; member of the Washington State Medical Association; aged 62; died, Oct. 23, 1936, in the Virginia Mason Hospital, of poison, self administered.

John Lyman Beard ✠ Santa Monica, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1913; aged 48; died, Nov. 9, 1936, in the Alta Bates Hospital, Berkeley, of chronic myocarditis and nephritis.

Herbert W. Lewis, Dumbarton, Va.; University College of Medicine, Richmond, 1903; member of the Medical Society of Virginia; aged 59; died, Oct. 16, 1936, of pulmonary edema and coronary occlusion.

Erasmus E. Birney ✠ Nora Springs, Iowa; College of Physicians and Surgeons, Keokuk, 1887; aged 80; died, Nov. 4, 1936, of cerebral hemorrhage, arteriosclerosis and heart disease.

John Robin Blair, Richmond, Va.; University College of Medicine, Richmond, 1908; member of the Medical Society of Virginia; aged 53; died, Nov. 1, 1936, of nephritis.

Harold Henry Beiermeister, Needham, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1909; aged 52; died, Nov. 6, 1936, of coronary occlusion.

Edward Truman Boyes, Hamilton, Ont., Canada; Trinity Medical College, Toronto, Ont., 1890; aged 74; died, Nov. 20, 1936.

Clarence E. Axline, Peoria, Ill.; Louisville (Ky.) Medical College, 1881; aged 80; died, Nov. 1, 1936, of arteriosclerosis and myocarditis.

CORRECTION

The information in THE JOURNAL, Dec. 5, 1936, page 1908, that Dr. William Edgar Hover of Sarasota, Fla., was a graduate of the Medical School of Maine, Portland, 1888, was incorrect. It should have been Medical College of Ohio, Cincinnati, 1888.

Bureau of Investigation

JERGENS LOTION

A Lesson in the Art of Correspondence

The Andrew Jergens Company, makers of "Jergens Lotion" and radio sponsor for gossip Walter Winchell, just will not say what is in it, even to help out a lady who seems sensitive.

The Bureau of Investigation received from a dermatologist a letter which read:

"I have a patient with contact eczema resulting from Jergens Lotion, 'patch test' positive. Can you tell me the ingredients, also percentage of glycerine et al. contained in it?"

The Bureau maintains files regarding all sorts of proprietary preparations. The first item in the Jergens collection was a 1914 soap wrapper bearing a reproduction of the "neckless head" of John H. Woodbury, with the word "Dermatologist" beneath his signature. Attached was a 1903 advertisement of the John H. Woodbury Dermatological Institute of New York City, promising permanent and safe removal of "freckles, tan, moth blotches, liver spots, moles, warts, tattoo, powder or birth marks, superfluous hair, scars, wens, cysts, and all disfiguring, humiliating blemishes, on, in or under the skin, without leaving a trace of their former existence."

Next came a clipping from the *Oil, Paint and Drug Reporter* of Oct. 30, 1922, detailing some litigation between the Andrew Jergens Company and William A. Woodbury, Inc., in which it was brought out that in 1901 the Jergens Company acquired from John H. Woodbury and the Woodbury Dermatological Institute the right to make facial soap and toilet preparations, with the right to use the "neckless head" trade-mark.

So a letter was written to the Jergens Company on Oct. 16, 1936, stating, in substance, that our files seemed to contain no data on Jergens Lotion, and that we would appreciate some information on the subject. On October 20 the Jergens Company replied:

"A satisfactory reply to your letter of October 16th is difficult because we have no idea what it is your correspondents wish to know about Jergens Lotion.

"If you can particularize it, we shall be glad to endeavor to supply a suitable answer.

Your truly,
THE ANDREW JERGENS CO.
(Signed) Robert V. Beucus
Advertising Manager"

RVBeucus
EG

The reason for not particularizing in our first letter to the Jergens Company arose from a desire to spare the feelings of Mr. Ben Grauer, commercial announcer on the Walter Winchell-Jergens Program. Having frequently listened to that gentleman lamenting the disadvantages of red and chapped hands, we were afraid of the acute mental shock Mr. Grauer would suffer on learning that a case of contact eczema had developed following the use of Jergens Lotion. He sounds just that sincere on the air. However, being forced to "particularize," we wrote:

"I regret that I did not make myself clear in my letter to you of October 16 regarding Jergens Lotion. We should like to have information regarding the ingredients contained in Jergens Lotion. It is not necessary, however, to have the exact amounts."

We then received the following letter, dated October 24, from Philip D. Adams, Ph.D., of the Jergens Company:

"Mr. R. V. Beucus has just placed before me your own and his correspondence of October 16th, 20th and 22nd, relative to the constituents of Jergens Lotion, with the request that I take up the matter for further cooperation with the Bureau of Investigation. For obvious reasons, we do not disclose the composition of Jergens Lotion.

"Having already examined all the known reports on the pharmacologic effects of Jergens Lotion constituents and, with the guidance of our advisory dermatologists, it is very likely we can supply satisfactory information to you on all other specific inquiries.

"In a preliminary way, we can assure you of the following: Jergens Lotion contains no metallic substances, as mercury or lead; it contains no substances to which many people are allergic or hypersensitive, as proteins or their decomposition products; it contains no materials such as hormones or other animal organ extracts.

"If we can in any way cooperate further with the Bureau of Investigation, please write me again concerning your specific inquiries."

Being considerably confused by the Jergens idea of cooperation, we wrote to Dr. Adams on October 27 as follows:

"I appreciate having your letter of October 24, but am sure you realize that it contained no information of value to this Department. Knowing what something does *not* contain is of little use in answering inquiries.

"I can appreciate your not desiring to give out the formula of Jergens Lotion or its method of manufacture, but a great many manufacturers of toilet preparations have felt no hesitancy in giving us the names of the ingredients in their products.

"The reason for our original inquiry was that we had received a letter from a dermatologist of Seattle, Wash., who stated: 'I have a patient with a contact eczema resulting from Jergens Lotion, "patch test" positive. Can you tell me the ingredients, also percentage of glycerine et al. contained in it?'

"We regret that you were unable to be of assistance to us in this matter."

In reply to this, the Andrew Jergens Company wrote the following letter to the Bureau of Investigation under date of Nov. 4, 1936, regretting their inability to be of assistance, but

CUPID FROZE at the touch of her Chapped, Rough Hands!

but a few days later he melted

ONLY soft, appealing hands can light the flame of love. But how *can* you keep your hands exquisite?

Easily enough with Jergens Lotion! Even though the mercury drops. Even though you wash your hands 8 times a day and have them in water at least 8 times more, as any busy woman does!

For Jergens penetrates the deeper skin cells, over-coming their dryness. Compared with other leading lotions tested, Jergens goes into the skin *faster*, more thoroughly. Its two special softening ingredients make rough, red hands quickly smooth and white again!

Use Jergens whenever your hands have been in water, always after exposure to cold. Then your hands will have the tender softness that brings love!

Jergens Lotion

All four sizes—$1.00, 50c, 25c, 10c—contain more lotion than similar sizes of other well-known lotions. You'll find the big dollar size the most economical of all.

FREE! GENEROUS SAMPLE

Prove for yourself how swiftly and thoroughly Jergens goes into the skin, conserves and renews the youth-guarding oils and moisture your hands need!

The Andrew Jergens Co., 124 Alfred Street, Cincinnati, Ohio. (In Canada—Perth, Ontario.)

Name _____ PRINT NAME

Address _____

December 1936 Good Housekeeping

still assuring us of their desire to cooperate. Students of English composition will no doubt be interested in the use of the double negative. Or is it the triple negative?

"Considering that many millions of bottles of Jergens Lotion are used annually with no unfavorable reactions coming to our attention, it appears that Jergens Lotion is as nearly 'non-allergic' as anything can be and, also, it seems that few people in many millions are otherwise hypersensitive to its constituents.

"I regret, also, that we were unable to be of greater assistance to you in this particular instance. We are always glad, however, to cooperate to the fullest extent with the American Medical Association, physicians or other consumers."

Being thoroughly convinced by the last Jergens letter that the company's idea of cooperation, as compared to that held by the Bureau of Investigation, was like Kipling's "East is East and West is West," we gave up writing and purchased two original bottles of Jergens Lotion and submitted them to the A. M. A. Chemical Laboratory for examination. The Laboratory reported:

"Two original bottles of Jergens Lotion (The Andrew Jergens Company) were submitted to the A. M. A. Chemical Laboratory by the Bureau of Investigation for examination.

"The bottles contained 190 cc. (approximately 6½ fluidounces) of a white, viscous, perfumed liquid. The mixture possessed an odor indicative of almond. The reaction toward litmus was found to be alkaline.

"No information concerning the composition of Jergens Lotion appeared on the label, except the following declaration:

"'Alcohol 11%'

"Qualitative tests indicated the presence of glycerin, borates, salicylates, water and substance precipitable by alcohol, suggestive of tragacanth.

"From the foregoing tests, it was deemed not advisable to perform further work on the product. The Laboratory concluded that Jergens Lotion is essentially a white, perfumed, hydro-alcoholic preparation containing a mucilaginous substance such as tragacanth, glycerin, boric and salicylic acids."

It is hoped that the unfortunate sufferer with eczema recovered during the time consumed by the Jergens correspondence.

When we wrote our first letter, we were naive enough to believe that Mr. Ben Grauer would send the formula of Jergens Lotion forthwith. Those trained radio voices are so sincere. But we received no word from Mr. Grauer, no flash from Walter Winchell or even a tender from Dr. Adams of "Lotions of Love." Maybe we are just too inquisitive.

Correspondence

THAT GARLIC ODOR

To the Editor:—We have followed with considerable interest the articles and correspondence on garlic breath odors that have appeared in THE JOURNAL in recent months (Haggard, H. W., and Greenberg, L. A.: Breath Odors from Alliaceous Substances: Cause and Remedy, THE JOURNAL, June 15, 1935, p. 2160. Blankenhorn, M. A., and Richards, C. E.: Garlic Breath Odor, Aug. 8, 1936, p. 409. Haggard, H. W.: Eliminating Odor of Garlic, Sept. 12, 1936, p. 895. Blankenhorn, M. A.: Garlic Odor to Breath, Oct. 17, 1936, p. 1321). No one can seriously doubt that a considerable part of "garlic breath" may be due to retention in the mouth of tiny particles of garlic-tainted foods. Furthermore, as a result of experiments to be mentioned, we can confirm Haggard and Greenberg's experience that chloramine will deodorize these mouth particles. It seems to us that the crucial question to be answered is "When garlic is orally ingested in the customary manner, does a sufficient amount of its volatile oils accumulate in the blood to cause fouling of the breath?" Three different lines of experimentation have led us to the same answer to this question. These experiments comprised (1) the ingestion of garlic in double gelatin capsules, with observation of the appearance time and intensity of garlic odor on the breath, (2) the repetition of the foregoing supplemented by mouth cleansing, shown to be adequate after chewing of garlic, and (3) testing the breath of new-born babies whose mothers had received capsules of garlic during labor.

1. In twelve experiments on ten normal adults, garlic was ingested in gelatin capsules in doses of from 0.5 to 1.5 Gm. The capsules were freshly filled with slightly bruised kernels of raw garlic and were then enclosed in a second capsule so that no odor permeated to the outside. At least two observers, often more, noted the breath of each subject before and during the experiment. It seems superfluous to caution that a subject who has taken garlic cannot detect the garlic breath of others and therefore cannot serve as an observer. The dosage used was chosen because such amounts are frequently ingested in the dietary of certain large groups of our population and was that employed in comparable experiments by Haggard and Greenberg. The sense of smell alone was used to detect the presence of garlic odor. This extremely sensitive method is obviously adequate for the purpose of answering our proposed

question. In the last analysis, it is the olfactory sense which determines whether or not a person who has eaten garlic is guilty of "offensive breath."

In all twelve experiments, the garlic odor unquestionably appeared on the breath. The appearance time varied from twenty to 120 minutes after ingestion of the capsules. The odor increased in intensity for from one to two hours, maintained a plateau of varying duration, and then gradually waned. The longest persistence of odor noted was twenty-six hours. No definite correlation was found between dosage and appearance time, intensity or duration of odor. In five of the experiments on four subjects, the encapsulated garlic was given directly after a large meal, and the results could not be differentiated from those in which the vegetable was taken on an empty stomach. In two instances the garlic odor was detectable in single specimens of urine passed several hours after ingestion of the capsules.

The fact that there was no odor detectable for some time after swallowing the capsules would appear to rule out any contamination of the mouth or throat. Several subjects were asked to belch soon after swallowing the capsules, and at such times a strong garlic odor was momentarily detectable. The transient character of this odor indicates that regurgitation of this sort does not contaminate the mouth. The exhaled air, therefore, would seem to be the source of the garlic odor noted in all these experiments.

2. Another group of experiments leads to the same conclusion. In each of two subjects, 1 Gm. of garlic was thoroughly chewed and then spit out; the breath was immediately and markedly fouled. Vigorous gargling and brushing of the teeth for five minutes with 50 cc. of a 1 per cent solution of freshly prepared chloramine (Chlorazene, Abbott) completely and permanently removed the odor. Three other subjects were now given garlic in capsules in the dose of 1 Gm., and as soon as the garlic odor was detected on their breath the chloramine washing was performed. Although the chloramine odor was sufficiently pronounced to prevent completely the detection of the garlic odor for from twenty to forty-five minutes, the latter was again strongly apparent after the mouth-wash odor faded. The garlic odor is obviously coming from some source not reached by chloramine; i. e., the expired air. It appears that chloramine can remove only that fraction of the garlic odor which is contributed by the mouth contamination by the vegetable and masks but temporarily the part contributed by the volatile oils excreted from the blood through the lungs.

3. Finally, a third group of experiments was performed, suggested by Dr. W. C. Moloney in his communication to THE JOURNAL (Sept. 5, 1936, p. 809). We are indebted to Drs. A. H. Morse and Herbert Thoms for the privilege of using the obstetric wards for certain of these tests. In eight women in the first stage of labor, garlic was given orally in capsules in the manner outlined, in doses of from 1 to 1.5 Gm. In each case the breath was previously free of any garlic-like odor. The patients had not ingested solid food for at least four hours. The same results as recorded for the larger group were observed in these cases; the garlic odor was quite evident within twenty to eighty minutes. These eight patients were delivered of living babies from twenty-five minutes to twenty-one hours after ingestion of the capsules. On the breath of six of the eight babies, garlic odor was definitely present. This was verified in each instance by at least four neutral witnesses who had no knowledge of the experiment. Numerous other new-born babies were used as controls, and in no instance was any control baby mistaken for a garlic subject. Anesthesia odors were not involved, as only nitrous oxide-oxygen was used, and then in only four of the cases. The garlic odor persisted on the breath of the infants for from four to twenty hours. In the two negative experiments, one child was delivered twenty-five minutes after the mother took the garlic and at a time when her breath was as yet but feebly tainted; in the second case the delivery occurred after twenty-one hours, when the mother's breath no longer showed the odor. It must be obvious that the volatile oils in garlic not only accumulate in the mother's blood in sufficient concentration to taint her breath by excretion through the lungs but also to pass the placental barrier and "perfume" the breath of the fetus. The problem of mouth contamination is excluded by these experiments.

From these data, in conjunction with what is already known about the absorption, fate and excretion of the volatile oils of garlic, it is apparent that the garlic breath odor after the oral ingestion of the vegetable is due not only to contamination of the mouth by particles of garlic but also in part to the absorption of these oils from the intestinal tract into the blood, their transportation to the lung capillaries, and consequent excretion into the alveolar air. The latter factor alone, under the conditions of our experiments, can result in fouling of the breath which is not obliterated by specific mouth washes. In the light of this evidence, it appears possible in agreement with Blankenhorn and Richards to answer the postulated question only in the affirmative.

We have discussed at length these results with Drs. Haggard and Greenberg and they agree with us that the problem is largely a quantitative one; that is, that the main and immediate odor after eating garlic is due to mouth contamination and that the odor contributed by the blood depends on numerous factors, all of which determine the final concentration of volatile oil reached in the blood. The most important of these factors, naturally, is the amount of garlic ingested. Again, the expressions "fouling" and "offensive breath" are certainly terms which are open to different interpretations. To have a faint garlic odor on one's breath which can be detected only by intimate contact is obviously quite a different matter than contaminating the air of an entire room.

We have done no experiments with onions, but Drs. Haggard and Greenberg permit us to report their recent finding that 30 Gm. of raw domestic onion can be swallowed in capsules and no odor detected on the breath.

LOUIS GOODMAN, M.D.
PHILLIP BEARG, B.A.
New Haven, Conn.
Laboratory of Pharmacology and Toxicology,
Yale University School of Medicine.

SALMONELLA SUIPESTIFER

To the Editor:—The communication from Dr. John R. Mohler in the Nov. 21, 1936, issue of THE JOURNAL, the second of two communications on the subject which you have received, referring to an article (THE JOURNAL, Aug. 1, 1936) by the undersigned, requires an answer.

The statement at issue in our article is as follows:

> Until the World War, the Salmonella suipestifer organism was known to be the cause of hog cholera.

We do not feel that any inference can be drawn from this sentence to lead any one to believe that the present-day concept of the etiology of hog cholera is anything else but a filtrable virus.

In our case report we do not raise the issue of filtrable viruses but call attention to the relationship of the organism Salmonella suipestifer to human disease.

No statement was made by us as to the transmissibility of hog cholera as such to man but that the secondary invader, so commonly associated with that disease, is of definite pathogenicity for man.

LESTER COHEN, M.D.
HAROLD FINK, M.D.
IRVING GRAY, M.D.
Brooklyn.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DEATH FROM HYPERPYREXIA IN HEAT TREATMENT OF SYPHILIS

To the Editor:—For approximately six years I have had as a patient a man suffering from syphilis. When he first consulted me he had secondary manifestations and a four plus Wassermann reaction. He was given neoarsphenamine, intramuscular bismuth and mercury. A course of treatment consisted of twelve to fifteen weeks and then a rest period varying from four to six weeks, when a blood test was made to determine the progress. In December 1933 his blood Wassermann reaction was negative. At this time a spinal puncture was made and this was negative. I informed my patient that he was cured of syphilis so far as medical science was able to determine but advised blood tests every six months for the next three years. Later the patient moved to the east coast. He consulted me again in 1935 and stated that he had had no blood tests made while away. Wassermann, Kolmer and Kahn blood tests made at this time were all reported four plus. Not being satisfied with the report of one laboratory, I sent his blood to another. This report was the same. There was no history of new infection. Treatment was again instituted, it being the same as the earlier courses except that after a time I changed to marpharsen, giving him 0.06 Gm. once every week along with sodium iodide. But I was never again able to obtain a negative Wassermann reaction. A few months ago I called to this patient's attention the reports appearing in THE JOURNAL regarding the good results obtained by hyperpyrexia and had him read a few of these articles. We decided on this therapeutic measure. The patient's height was 5 feet 7 inches (170 cm.), weight 154 pounds (70 Kg.) and age 49 years. As far as I was able to determine he was in perfect physical condition. The blood pressure was normal. The urine was normal. There were no cardiac murmurs. The lungs were normal. There were no masses or tenderness in the abdomen. The reflexes were all normal. In other words, my impression was that I was dealing with a man in perfect health, his only disability being the reaction of the blood. He was particularly insistent that he obtain a negative Wassermann reaction if possible. Nov. 29, 1936, I had him report to a physical therapy technician who has given more than 500 hyperpyrexia treatments and has treated other patients of mine with excellent results. The method of application was through the electric blanket. The time, temperature by mouth and pulse were as follows:

Time	Temperature	Pulse
9:10 a. m.	97 F.	80
9:42 a. m.	98.4 F.	98
10:05 a. m.	100.6 F.	108
10:20 a. m.	102 F.	120
10:40 a. m.	104 F.	138
10:45 a. m.	104.4 F.	140
11:10 a. m.	106 F.	104

At this time I gave the patient morphine sulfate one-fourth grain (0.016 Gm.) hypodermically, with instructions to hold the temperature at that level for three hours and then permit a gradual cooling off in the afternoon.

Time	Temperature	Pulse
11:45 a. m.	106 F.	130
12:10 p. m.	106 F.	132
1:00 p. m.	106 F.	140

At that time the current was turned off, the blanket loosened and the patient permitted to cool slightly. At 2 o'clock his temperature was 105.8 and pulse 120. In the early afternoon I was called to a nearby city to see a patient suffering from angina pectoris. On my return I found that the patient had died at 2:55 p. m. At 2:20 his heart first showed evidence of weakness. Efforts were made to cool him rapidly. Stimulation was applied as much as a technician could apply. The postmortem was performed by the coroner on my refusal to sign the death certificate. The examination showed the brain, spleen, liver and kidneys to be normal, although the coroner did think that there was some evidence of myocardial weakness. The lungs showed passive congestion of the right lower lobe. Autopsy was performed by a surgeon of vast experience and his conclusions were that death was due to hyperpyrexia due to hypersusceptibility to heat being used in treating syphilis. Please omit name.

M.D., California.

ANSWER.—This case presents a complicated problem which does not lend itself to ready solution from the evidence presented. The patient appeared to be an excellent risk despite his age of 49 years, and the treatment seems to have been uneventful until 2 p. m. A satisfactory fever was produced within a reasonable time and was maintained at a constant level. The pulse rate as recorded was never alarming. In the absence of an excessive pulse rate the evidence of cardiac weakness is puzzling. Cyanosis, dyspnea or a poor volume pulse would have been preceded or accompanied by an increased pulse rate. At any event, something unusual was observed at 2:20 p. m. A satisfactory explanation of developments from this time until death supervened at 2:55 is impossible without further knowledge of details.

A temperature of 106 F. by mouth is equivalent to 106.6 or 106.8 by rectum. At such temperatures a moderate amount of physical exertion may cause a rapid elevation of fever. When the heart first showed evidence of weakness, the patient probably developed restlessness, mania or even convulsions, with a substantial increase in heat production due to muscular work and a rapid rise in body temperature. Efforts made to cool such a patient rapidly by applying cold to the skin produce marked vasoconstriction, effectively preventing heat radiation. What happened in this case is unknown, but the following sequence of events has been observed three times and may be analogous to the case under discussion: During the course of a fever treatment at 107 F. which had been well tolerated up to this time, the patient suddenly became restless and uneasy and the temperature began to rise. In ten or fifteen minutes the patient became disoriented and maniacal and soon lapsed into deep coma. While efforts at resuscitation were being made the respirations became shallow and infrequent, the blood pressure fell to a very low level, even to zero, and the peripheral pulse became imperceptible. The skin was hot and cyanotic and the rectal temperature rose to over 109 F. Precordial activity was increased and the heart was very rapid with a rate of 180 to 200 per minute, but the heart sounds were of good quality. Except for the fever and the hot and cyanotic skin, the condition strongly suggested profound surgical shock. With the prompt administration of epinephrine and caffeine with sodium benzoate and the injection of 100 cc. of 50 per cent dextrose solution intravenously the pulse volume improved, the blood pressure rose very promptly, and the patient came out of coma in a few minutes. If this condition simulating surgical shock was to persist for a short while, even from fifteen to thirty minutes, death from anoxemia probably would result.

In the case under discussion, undue restlessness may have resulted from impending tetany. Hyperventilation during fever therapy occurs as the result of stimulation of the respiratory center from direct heating of the skin. This may produce tetany because of the profound depression of the carbon dioxide content of the blood. Hyperventilation probably was not a factor here because of the morphine effect in depressing respiration. The loss of chlorides through the sweat may result in the production of alkalosis and tetany. It has been established that about 20 Gm. of sodium chloride is excreted through the skin during a five hour fever treatment. No mention is made of the fluid or chloride intake during the treatment.

It seems evident that death in this case was due to hyperpyrexia. The diagnosis of hypersusceptibility to heat, however, seems unreasonable. This patient was able to tolerate a very high body temperature for several hours. It seems likely that he died only after his body temperature reached an extremely high level, a level which frequently causes death in cases of heat prostration. Death probably resulted from anoxemia due to circulatory and respiratory collapse. A satisfactory pathologic diagnosis in such cases often cannot be made. Death occurs so rapidly that organic changes are scarcely to be expected and even passive hyperemia may be slight or absent. Because of the circulatory collapse, petechial hemorrhages are not produced.

CLIMATIC CHANGE AFTER PNEUMONIA

To the Editor:—A youth, aged 17, had an attack of lobar pneumonia in December 1935, which was aborted by the use of bivalent antipneumococcus serum. Recovery was rapid, but three months later lobar pneumonia again developed. Because of a severe reaction during the administering of serum, this manner of treatment was not continued. A rather typical course ensued with the temperature returning to normal about the ninth day by lysis. The temperature remained normal five days, when he began to have severe pain in the right lower part of the chest anteriorly about the same site in which the process began. He raised bloody sputum and the temperature was above normal for about five days. The highest point it reached during this attack was 101 F. I thought this was a relapse. The chest signs have all cleared up and he seems to be in excellent condition. His family, which is in only moderate circumstances, has asked as to whether or not a change to a warmer and more equable climate would be advisable for the winter months. Such a change would be quite an economic strain. Please omit name.

M.D., West Virginia.

ANSWER.—Lobar pneumonia as a rule clears up completely or it leaves rather obvious complications. The question does not state the location of the first attack, but one wonders whether the entire process was not a continuation of the original infection.

It is true that some persons are much more susceptible to pneumococcic infection than are others, so information regarding previous attacks of pneumonia would have a bearing on this case.

If this patient has not had previous attacks of pneumonia, if he is in good health now, if the physical and x-ray examinations give normal results, it would seem unnecessary to send him away.

If these conditions are not all fulfilled, a change to a more equable climate for one or two winters should be considered.

EXTRASYSTOLES

To the Editor:—What are present conclusions regarding drug therapy and mode of action in functional cardiac disturbances? An active man of 75 has had noticeable extrasystoles for fifteen years, increasing in frequency and discomfort recently. The blood pressure is 105 systolic, 70 diastolic. The pulse is 70 and very irregular in strength. Quinidine hydrochloride 3 grains (0.2 Gm.) three times a day sometimes relieves and sometimes aggravates symptoms. Does this drug act through the thyroid in such cases? Please omit name. M.D., California.

ANSWER.—To confine the discussion to the specific case described here, it must be pointed out that the extrasystoles may not be on a functional or neurogenic basis.

Extrasystoles may be ascribed to neurogenic and to organic causes. The neurogenic type is common in younger persons, is frequently not associated with other cardiac disturbance and may often be linked up with specific reflex disturbances.

Extrasystoles making their original appearance after fifty years and increasing in severity as time goes on raise a suspicion of organic cardiac disease. Most commonly this consists of ischemic areas of the heart muscle resulting from coronary changes. The case described here would seem to fall into this group.

Quinidine is believed to act on the heart muscle directly and not through the thyroid. It depresses the cardiac irritability and for this reason is the drug of choice in the neurogenic extrasystole. Because it depresses other functions of the heart muscle, it must be used with some care when cardiac disease is present.

The extrasystole that is produced by coronary disease is more likely to yield to the drugs of the theobromine or theophylline group.

Was this arrhythmia confirmed by the electrocardiogram? The question states that the pulse is very irregular in strength. Very frequent extrasystoles are often confused with other arrhythmias, notably auricular fibrillation, and can be differentiated only by the electrocardiogram.

THERAPY OF COUGHS

To the Editor:—A man, aged 72, has had a chronic cough for more than two years. In the last two months the cough has become much worse. It usually comes on in paroxysms in the evening and the patient expectorates large quantities of greenish mucus of thick consistency. Analysis of the sputum disclosed no acid fast organisms; Micrococcus catarrhalis predominated. Ordinarily cough mixtures and other preparations have no effect. The man has had a mitral insufficiency for several years and bronchitis. I am now considering a bronchiectasis. Any suggestions for diagnosis and treatment, especially to lessen the amount of secretion, will be appreciated. BENJAMIN GOLDBERG, M.D., Chicago.

ANSWER.—The discussion of the "Therapy of Coughs," published in THE JOURNAL, Feb. 1, 1936, might contain a number of useful suggestions for diagnosis and treatment.

INABILITY TO EMPTY BLADDER OF ELDERLY PATIENT AFTER PNEUMONIA

To the Editor:—A man, aged 85, had a right lobar pneumonia two months ago. Two weeks later he was unable to urinate and was catheterized. For the past six weeks he has needed a retaining catheter. This rubber catheter passes easily; his prostate is apparently normal but still he cannot urinate. Irrigations are clearing up a chronic cystitis; the bladder holds from 6 to 8 ounces and the output is good. He is still in bed, too weak to sit up; his knee jerks are hyperactive and I have diagnosed his case as a cord bladder following pneumonia. Is there any way to overcome this by operation or medication so he can urinate? Please omit name. M.D., Minnesota.

ANSWER.—It is not uncommon for elderly males to develop urinary retention while confined to bed. This should disappear when the patient gets back on his feet. If not, a more thorough urologic examination must be performed, as it is to be remembered that obstruction by the prostate cannot always be determined by rectal examination. Treatment by means of the various drugs used to stimulate neurogenic bladders, such as ergotamine tartrate or mecholyl, should not be tried until the diagnosis of cord bladder is confirmed by cystoscopic or cystometric study. Certainly the treatment of choice in this case is the continuation of drainage by urethral catheter until the patient is out of bed.

PERCOL

To the Editor:—I have come across a product sold under the trade name of "Percol" which is manufactured by the Ernst Bischoff Company, Inc., 135 Hudson Street, New York City. In looking through the copy of the N. N. R. and its supplement I find no reference either to the product or to the company. According to the pamphlet enclosed with the preparation it is supposedly indicated for "irritating and spasmodic coughs," and its ingredients are listed as:

Piscidia erythrina
Thymus vulgaris
Castanea dentata

but the concentrations of each are not given. Piscidia, so far as I can determine, was introduced at one time as a sedative, hypnotic and analgesic, but later it was proved practically useless (Tyrode and Nelson, 1905). The thyme oil, if present in sufficient concentration, is commonly accepted as an irritant. As for the castanea, presumably the fluidextract, I can find no reference to it in recent pharmacologic textbooks. The product seems to be enjoying quite a popular enthusiasm in this region, both in self medication and in legitimate practice, but I am perplexed as to the rationality of it as a therapeutic agent and wonder whether the foregoing are all of the ingredients. I would appreciate any information that is available relative to the product, as well as references to recent literature, if there are any.

ADAM J. RAPALSKI, Student (Syracuse '38), Nutley, N. J.

ANSWER.—Neither the Council on Pharmacy and Chemistry nor the A. M. A. Chemical Laboratory has made an investigation of Percol. The preparation does not stand accepted by the Council for inclusion in New and Nonofficial Remedies nor has the Ernst Bischoff Company requested the Council to consider the product.

Our information regarding the composition of Percol is limited to the inadequate statements appearing in the advertising material issued by the Ernst Bischoff Company. According to this advertising the ingredients of Percol are piscidia erythrina, thymus vulgaris, pinguicula alpina, and castanea dentata. Piscidia erythrina is described in Sollmann's Manual of Pharmacology as "practically useless." Castanea dentata (chestnut leaves), according to the U. S. Dispensatory, "were recommended a half a century ago in the treatment of whooping cough and the superstition still survives to a certain extent. There is, however, no sufficient reason to believe them to possess any therapeutic value except that of a mild astringent which is due to their tannic acid." Thymus vulgaris, of course, supplies the well known oil of thyme. Pinguicula alpina (alpine butterwort) is not described in any of the standard textbooks on pharmacology or therapeutics available to us. From this information it would appear that Percol is an unscientific mixture of obsolescent drugs, the use of which, in the absence of scientific evidence of their value, is not in the interest of rational medicine.

It is interesting to note that the Ernst Bischoff Company for more than twenty years has marketed another treatment for spasmodic coughs. This preparation, known as "Diatussin," is stated to be "an alcoholic extract of the active principles of two recognized medicinal plants indigenous to the Alps"—thymus vulgaris and pinguicula alpina! A note on Diatussin appearing in THE JOURNAL, May 17, 1913 (Propaganda for Reform, Vol. 1, p. 293). More recently, THE JOURNAL published an abstract of a Notice of Judgment (No. 17767) issued by the federal authorities charged with the enforcement of the Food and Drugs Act. This appeared in THE JOURNAL, Jan. 7, 1933, page 58, and called attention to the misbranding of Diatussin and Diatussin Syrup because of false and fraudulent claims. One wonders whether this unfavorable publicity may explain the decision of the Ernst Bischoff Company to add two obsolescent drugs to its Diatussin formula and call the resulting mixture "Percol."

FROZEN MILK

To the Editor:—My associates and I were much interested in your reply to an inquiry on the use of frozen milk in infant feeding on page 562 of THE JOURNAL for Feb. 15, 1936. In connection with this subject you may be interested in the enclosed reprint, "The Food Value of Frozen Evaporated Milk," by Louder and Smith, from the *Journal of Dairy Science*, March 1932. You will note that the Louder and Smith study is not in absolute agreement with the statement in THE JOURNAL. Would you favor us with the reference in the literature on which the statement in THE JOURNAL is based?

CHARLES DILLON, Evaporated Milk Association, Chicago.

ANSWER.—The references in the literature on which the statement in THE JOURNAL is based are found in "Milk," by Paul G. Heineman (Philadelphia, W. B. Saunders Company, 1919) and "Principles and Practice of Infant Feeding," by Julius H. Hess (Philadelphia, F. A. Davis Company, 1922).

On page 87 of the latter, in the paragraph on frozen milk, it is stated that "vomiting and not infrequently diarrhea follow the feeding of milk that has been frozen. So far as possible,

it is better to avoid the use of milk of this type. As this is not always possible, such milk should be boiled before being used in the feeding mixture. In most instances, the changes are in all probability physical, for in the freezing of the water the emulsion breaks and the fat becomes separated. When the milk is thawed, the fat globules coalesce and form a thick layer of butter fat which may cause a gastric and intestinal upset. Milk that has been frozen is less likely to show changes in the fat emulsion if the process of thawing goes on slowly in a cool room. Pennington and her collaborators also found that changes occurred in the protein of milk that was held for a considerable period at a temperature of 0 C. These changes resulted in proteolysis of the casein and of the lactalbumin."

IRRITATION FROM BENZEDRINE INHALER

To the Editor:—A man, aged 26, during the course of half an hour, took twelve large sniffs from a benzedrine inhaler, in spite of the warning not to overdose. The usual clearing of the nasal passages occurred. One hour later, on going out into the open air, he was suddenly seized with an attack of violent sneezing, a burning, stinging, itching and sharp intermittent lancinating pain, which passed through his nose and up into the frontal region, together with severe lacrimation and a profuse seromucous discharge from the nasal passages. The sneezing was relieved by mouth breathing but the other symptoms persisted. There was no feeling of anxiety and no other symptoms were noted. The patient had just recovered from a severe cold and sinusitis of about ten days' duration, during which time he had used the benzedrine inhaler according to directions. He had not used the inhaler for about four days prior to the present episode. Examination revealed a markedly injected conjunctiva, hyperemic nasal mucosa and much swollen turbinates. There was profuse lacrimal and nasal secretion. The temperature was 98.6 F., pulse 108, respiration 18. The blood pressure was not taken but as estimated by palpation was slightly elevated. Physical examination was not remarkable otherwise. Smears revealed the absence of eosinophils. One and one-half hours after the onset, the patient was given atropine 1/120 grain (0.5 mg.) for relief of profuse secretion, and liquid petrolatum was dropped into the nose. The atropine only served to increase the discomfort by adding to the dryness when the patient breathed through his mouth. The liquid petrolatum had no effect. Three hours after the onset the nasal mucosa was sprayed with epinephrine and 0.5 per cent cocaine solution. These failed to shrink the turbinates and the hyperemia persisted, but the anesthetic properties of the cocaine relieved the distressing symptoms for about forty-five minutes. Epinephrine 1: 1,000 hypodermically had no effect in relieving the symptoms. The burning, itching, stinging, lancinating pain, lacrimation and hyperemia have persisted for forty-eight hours but have decreased slightly in severity. No relief has been obtained except through the use of 0.5 per cent cocaine. Consultation of the literature in the local medical library has revealed nothing in the way of therapy. Can you offer any suggestions as to therapy in future cases of this sort? Is it logical to assume that the overdose of benzedrine was responsible for the symptoms and what was the nature of the action? Could it be that the menthol in the inhaler was responsible? Is benzedrine habit forming? Thank you for any information you may offer.

M.D., Ohio.

ANSWER.—The symptoms described are obviously due to irritation, which might have been caused by the rather excessive use of the inhalant or might have been due indirectly to the medicament but directly to the extension of inflammation that was present. A soothing mucous membrane ointment containing tragacanth or even cold cream, possibly with the addition of a small amount of cocaine, might give the greatest degree of relief. Benzedrine is not habit forming in the sense a narcotic is; but, of course, it is merely a symptomatic remedy and does not cure the disturbance.

USE OF ELECTROCARDIOGRAPH IN DETERMINING AURICULAR AND VENTRICULAR RATES

To the Editor:—Please state methods for determination of auricular and ventricular rates from electrocardiographic tracings. Please omit name.

M.D., West Virginia.

ANSWER.—The modern electrocardiograph is equipped with a standard timer which produces vertical lines at intervals of 0.04 second. Every fifth vertical line is registered heavier and marks intervals of 0.2 second. Some electrocardiographs with motors run by clockwork have omitted the time lines, the time being obtained by inserting the record under a transparent scale which the manufacturers have provided. There are two common methods used to estimate the heart rate. The first is to determine the time interval for a number of beats between homologous points on the QRS complexes, in the case of ventricular rate, and on the P waves for auricular rate, and from these compute the average. The heart rate can then be determined by dividing sixty seconds by the duration of the average cycle. The second method is to determine the number of beats occurring in five, ten or fifteen seconds and then multiplying by 12, 6 or 4 respectively; in this way the average rate may be obtained. Rulers have recently been marketed by which the latter method is facilitated, but these rulers require that the camera speed be at a fixed and uniform rate. When the auricles are fibrillating the calculation of the fibrillating rate is more difficult, but approximations may be obtained in the leads in which the fibrillating waves are clearly discernible. When the rhythm is disturbed by ectopic beats, it is customary to ignore these beats and determine only the rate of the predominant rhythm.

CRYING OF FETUS IN UTERO

To the Editor:—On the morning of Sept. 30, 1936, I had an obstetric call to a patient who had had no antepartum care, was anemic, and had the appearance of having uremic poison. Eighteen hours prior to this she had had an opiate. On making a vaginal examination, I found a breech presentation in the cervix dilated about 2 inches in diameter. While I was examining the patient, the amniotic sac ruptured. I waited two hours and no progress had been made. The patient being too weak to deliver, I decided to try forceps. Just as I had everything ready and the nurse started to give the anesthetic, the baby began crying; it could be heard all over the room and by an uncle in the adjoining room. We postponed giving the anesthetic, because it was such an unusual occurrence. It cried for three minutes and then there was a pause for about two minutes; then it started crying again, this time for about two and a half minutes. At this time the cervix had not dilated any more than at my previous examination two hours prior. There was no part of the baby's body out of the uterus and I questioned whether I was going to be able to deliver her at this time without considerable difficulty on account of the cervix not being dilated any more than it was. I delivered the baby and it weighed 6½ pounds (2.9 Kg.). It was a normal healthy baby and the mother recuperated nicely. I have never heard of a case like this before and wondered whether any one else had ever had the same experience. The father stated that the baby had cried three months before, but there is no proof of this. I know that the baby cried in the uterus during delivery and have three people who will sign affidavits to this effect.

J. H. CORBETT, M.D., Jasper, Fla.

ANSWER.—There are many cases of crying by the fetus in utero. Vagitus uterinus is the term for it. When air gains access to the uterus (as it did in this case during the time the examination was made) the baby may inspire some and emit cries. Usually the babies are dyspneic and therefore breathe, but cases are on record in which the baby was well (as in the case reported) and was delivered even several days after the crying episode.

Kristeller reported a case in which the child cried each time the forceps was closed on its head, eight times in all. It is said that Mahomet and St. Bartholomew cried while in the uterus. Unless the child shows signs of distress, the case should be left to nature. The subject has been discussed by von Klein (*Monatschr. f. Geburtsh. u. Gynäk.* **60**:154 [Oct.] 1922).

COMPOUND SPIRIT OF HORSERADISH

To the Editor:—Several years ago I used to write a prescription containing compound spirit of horseradish made from the dried root, but now it seems the druggists can't get this made from the dried root. Do you know where I might procure this, because I can't possibly use the fresh root spirits? The druggist who filled this prescription is dead, and I have no idea where he got the dried root. If you can give me this information I will very much appreciate it.

FRANKLIN H. BROYLES, M.D., Bethany, Mo.

ANSWER.—The compound spirit of horseradish, spiritus armoraciae compositus, is made, according to the British Pharmacopeia, from

Horseradish root, scraped	125	Gm.
Dried bitter orange, well bruised	125	Gm.
Nutmeg, bruised	31.5	Gm.
Alcohol	625	cc.
Distilled water	750	cc.

This mixture is subjected to distillation until 1,000 cc. is secured. It is obvious that it is the fresh and not the dried root that is desirable, because the latter would have but little of the volatile products. If, however, the spirit made from the dried root is desired, it is barely possible that the dried root might be secured from some dealers; but, if not, there is no reason why horseradish root might not be dried before being used.

TETANUS ANTITOXIN AND TOXOID

To the Editor:—Please advise me how long continued the effect of tetanus antitoxin is and how frequently it may be administered in cases warranting its use on account of receipt of new injuries, as a prophylactic measure. The standard textbook on medicine and therapeutics to which I have referred makes no mention of the duration of the passive immunity conferred by use of this agent.

FRED M. DULA, M.D., Lenoir, N. C.

ANSWER.—The passive immunity conferred by tetanus antitoxin lasts for a period up to six weeks but should not be depended on for more than two weeks. For the production of more permanent protection, tetanus toxoid should be employed.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Juneau.

CALIFORNIA: Los Angeles, Feb. 8-11. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Feb. 13. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Homeopathic).* Derby, Feb. 13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular).* Hartford, March 9-10. *Endorsement.* Hartford, March 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DISTRICT OF COLUMBIA: Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, Jan. 26-28. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, Jan. 12. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

MAINE: Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MINNESOTA: Minneapolis, Jan. 19-21. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEBRASKA: *Basic Science.* Omaha, Jan. 12-13. Director, Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: *Reciprocity.* Carson City, Feb. 1. Sec., Dr. John E. Worden, Carson City.

NEW HAMPSHIRE: Concord, March 11-12. Address Board of Registration in Medicine, State House, Concord.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

PUERTO RICO: San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

SOUTH DAKOTA: Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. B. A. Dyar, Pierre.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

WASHINGTON: *Medical.* Seattle, Jan. 11-13. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Charleston, March 1. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Madison, Jan. 12-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, Feb. 1. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. *Part III.* New York, Jan. 11-13 and Chicago, Jan. 19-21. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF INTERNAL MEDICINE: *Written* examination will be held simultaneously in different centers of the United States and Canada in March. *Practical* examination will be given in St. Louis in April and at Philadelphia in June. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210 Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the United States and Canada, March 6. *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. *Applications must be received at least sixty days prior to the examination dates.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Los Angeles, Jan. 23. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Chicago, March 26-27. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Michigan.

AMERICAN BOARD OF PEDIATRICS: New York, Jan. 23. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

Michigan June Examination at Ann Arbor

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 11-12, 1936. The examination covered 14 subjects and included 1,000 questions. An average of 75 per cent was required to pass. One hundred and twenty-one candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists		(1936)	82, 85
Stanford University School of Medicine		(1935)	83.5,* (1936) 84.8
George Washington University School of Medicine		(1935)	85.5
Loyola University School of Medicine		(1936)	79.5
Northwestern University Medical School		(1934)	83.9,* (1936) 80.9,* 82.2†
Rush Medical College		(1935)	83.6,* (1936) 83.6, 83.7
University of Illinois College of Medicine		(1936)	84.1*
Boston University School of Medicine		(1935)	85
Harvard University Medical School		(1928)	77.6
Tufts College Medical School		(1935)	80.6
University of Michigan Medical School		(1936)	80.3,* 81.2,* 81.4,* 81.7,* 81.7,* 81.8,* 82.1,* 82.1,* 82.2,* 82.3,* 82.3,* 82.4,* 82.5,* 82.5,* 82.5,* 82.5,* 82.5,* 82.6,* 82.6,* 82.6,* 82.7,* 82.8,* 82.9,* 83,* 83.1,* 83.2,* 83.2,* 83.2,* 83.3,* 83.3,* 83.3,* 83.4,* 83.4,* 83.4,* 83.5,* 83.5,* 83.5,* 83.5,* 83.5,* 83.6,* 83.6,* 83.6,* 83.6,* 83.8,* 83.8,* 83.8,* 83.8,* 83.9, 84,* 84,* 84,* 84,* 84.2,* 84.2,* 84.2,* 84.2,* 84.2,* 84.2,* 84.3,* 84.3,* 84.3,* 84.3,* 84.4,* 84.4,* 84.4,* 84.4,* 84.4,* 84.5,* 84.5,* 84.5,* 84.5,* 84.6,* 84.6,* 84.6,* 84.7,* 84.8,* 84.9,* 84.9,* 84.9,* 85,* 85.1,* 85.2,* 85.2,* 85.2,* 85.4,* 85.4,* 85.5,* 85.5,* 85.6,* 85.8,* 85.9,* 86,* 86,* 86.1,* 86.2,* 86.2,* 86.2,* 86.6,* 86.7,* 86.9,* 87,* 87,* 87.5,‡ 87.5*
University of Minnesota Medical School		(1934)	82.9
Columbia University College of Physicians and Surgeons		(1932)	83.5*
Marquette University School of Medicine		(1936)	84.8,† 84.8
University of Wisconsin Medical School		(1935)	85.2*
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1931)	80.3§

* License has not been issued.

† This applicant has completed the medical course and will receive the M.D. degree on completion of internship. License has not been issued.

‡ Did not complete his senior work—degree at a later date. License has not been issued.

§ Verification of graduation in process. License has not been issued.

Michigan June Examination at Detroit

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, June 9-10, 1936. The examination covered 14 subjects and included 1,000 questions. An average of 75 per cent was required to pass. Ninety-seven candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936)	84.9
Loyola University School of Medicine		(1936)	83.1
Northwestern University Medical School		(1936)	81.6,* 81.7,* 82.8,* 84.6*
Rush Medical College		(1936)	81,* 83.6
Harvard University Medical School		(1936)	87.3,* 88.3*
Wayne University College of Medicine		(1936)	83.6, (1936)† 76.1, 78.5, 79, 79.6, 79.9, 79.9, 80, 80, 80, 80.3, 80.3, 80.4, 80.6, 80.6, 80.8, 80.8, 80.8, 80.8, 80.9, 80.9, 81.1, 81.1, 81.4, 81.5, 81.5, 81.6, 81.6, 81.7, 81.7, 81.8, 81.8, 81.9, 82, 82.1, 82.1, 82.3, 82.3, 82.4, 82.4, 82.5, 82.5, 82.6, 82.6, 82.6, 82.7, 82.9, 83, 83, 83, 83.1, 83.2, 83.2, 83.2, 83.4, 83.4, 83.5, 83.5, 84, 84.1, 84.2, 84.2, 84.2, 84.3, 84.5, 84.5, 84.6, 84.6, 84.7, 84.7, 84.9, 85, 85, 85, 85, 85.5, 85.7, 85.8, 86.2, 86.2, 86.8, 87.6
University of Minnesota Medical School		(1936)	83.3*
Syracuse University College of Medicine		(1935)	82.1,* 84.8
University of Rochester School of Medicine		(1934)	80.8
McGill University Faculty of Medicine		(1934)	82.3*

* License has not been issued.

† These applicants have received the M.B. degree and will receive the M.D. degree on completion of internship. Licenses have not been issued.

Tennessee September Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Sept. 29-30, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Twenty-eight candidates were examined, 27 of whom passed and 1 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
Loyola University School of Medicine		(1935)	83.4
Tulane University of Louisiana School of Medicine		(1936)	85.3, 85.9
University of Tennessee College of Medicine		(1936)	80.9, 82.5, 82.6, 82.8, 83.3, 83.9, 84.1, 84.5, 84.6, 84.8, 84.9, 85.1, 85.3, 85.3, 85.3, 85.4, 85.4, 85.8, 86.8, 87.8, 88.3, 88.4, 90.9
Vanderbilt University School of Medicine		(1935)	88

School	FAILED	Year Grad.	Number Failed
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1910)*	1

Twelve physicians were licensed by endorsement from September 1 through October 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1935), (1936, 2)	N. B. M. Ex.
Rush Medical College		(1931)	Illinois
Tulane University of Louisiana School of Medicine		(1933)	Louisiana

University of Michigan Department of Medicine and Surgery .....(1913) Michigan
University of Cincinnati College of Medicine.....(1932) Ohio
University of Pennsylvania School of Medicine.....(1928)N. B. M. Ex.
Meharry Medical College.....(1922) Alabama
Vanderbilt University School of Medicine.....(1934)N. B. M. Ex.
University of Virginia Department of Medicine.....(1931) Maryland, (1933) Virginia

* Verification of graduation in process.

Book Notices

Modern Treatment of Diseases of the Respiratory System. By A. Lisle Punch, M.B., M.R.C.P., Senior Physician, Royal Northern Hospital, and F. A. Knott, M.D., M.R.C.P., D.P.H., Director of Bacteriological Department and Lecturer in Bacteriology to Medical and Dental Schools, Guy's Hospital. Cloth. Price, $5. Pp. 295, with 127 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

This volume is a practical handbook for the physician. The first eleven chapters are devoted to nontuberculous conditions of the upper respiratory tract, lungs, bronchi and pleura. Although emphasis is placed on the treatment of these conditions, considerable space is given to diagnosis and prevention. The diagnostic and therapeutic values of iodized oil and the methods of administration are fully discussed and the subject is illustrated by roentgenograms of the chest after iodized oil has been introduced. In the chapter on bronchial asthma and hay fever, considerable emphasis is placed on desensitization. The chapter on pneumonia presents the modern methods of treatment, such as serum therapy, administration of oxygen, and blood transfusion. Artificial pneumothorax is given a place for the almost instant relief of pain but is not thought to have any beneficial influence on the pneumonic process itself. A profusely illustrated chapter is devoted to intrathoracic tumors, and the more modern methods of diagnosis are adequately described. The various fungous diseases, asbestosis, silicosis, syphilis and fibrosis of the lung are included in one short chapter. Eighty-eight pages are devoted to chronic, pulmonary tuberculosis, in which diagnostic points are presented and the various methods of treatment described. Tuberculosis among children is described under the term "epituberculosis," which in reality is a part of the primary complex. Attention is called to the fact that this condition "invariably clears up without special treatment." Under the subject of artificial pneumothorax the ambulatory method of treatment, which is rapidly gaining in popularity in this country, is considered of value when it is impossible for the patient to be hospitalized or to remain in bed long at home. A good many workers in the United States will disagree with the statements concerning the length of time artificial pneumothorax should be continued, particularly in advanced cases with large cavities. The authors look on sanatorium treatment as only the first step in the management of the tuberculous patient and call attention to the care that must be provided after discharge from the institution. All the modern surgical procedures employed in the treatment of pulmonary tuberculosis are presented. In discussing the prevention of tuberculosis, the authors make the following statement: "Therefore application of BCG in the prevention of systemic tuberculosis in man is still unattempted in this country. The situation presents most difficult problems, and these are as yet sufficiently far from practical solution to make it unlikely that BCG or any allied preparation will in the immediate future be advocated for use by practitioners in England."

Begabung im Lichte der Eugenik: Forschungen über Biologie, Psychologie und Soziologie der Begabung. Von Dr. Josef Somogyi, Hochschulprofessor in Szeged. Paper. Price, 14 marks; 22.68 Austrian schillings. Pp. 518, with 47 illustrations. Leipzig & Vienna: Franz Deuticke, 1936.

Although this is a Hungarian work, it follows the Teutonic pattern of massiveness and thoroughness and treats largely with literature of the subject rather than with original research. The author has made a thorough study into the subject of special talents and, as the title indicates, has approached it from the standpoint of eugenics. The subject of talent is taken up from almost every point of view. The volume begins with a discussion of the genetics of talent, discussing heredity and eugenics with particular regard to psychologic features. The author takes up the matter of talent from the standpoint of body build and associated physical characteristics, laying great stress on Kretchmar's work, and he interrelates with this part a discussion of talent as found in the various races.

The second of the three main divisions of the book takes up in great detail the matter of psychologic traits such as intelligence, emotional factors and the various degrees of talent, with special reference to genius. There is a discussion of the various means of testing talent and also a discussion of the classification of different types of talented individuals. The point of view of the psychologic part of this volume is rather conventional. There is little included which cannot be found in other works, such as that of Terman, dealing with genius, yet one can find here a thorough analysis of the literature in French, German and English. While it is possible that the American work which has been done on this subject has been somewhat neglected, it cannot be gainsaid that Somogyi has touched on most of the important material. He does not hesitate to cite parallelisms determined on lower animals and he also presents historical and other material which, although related, is not strictly scientific.

The last part of the work deals with the sociological angle of the problem of talent. In his introduction the author stresses the fact that this is a democratic world and that, while all people are given an equal chance to develop, those with talent seem to get further, and it is worth while making a study of what it is that makes these people stand out. Since that is the angle which he takes, one can see that a sociological presentation in which he discusses individual and family relationships, group and race characteristics, and other similar features must be of importance.

Somogyi closes the book with a discussion of his ideas on what should be done about developing talent. He points out the need for the eugenic approach to induce the improvement of inherent characteristics, and also an educational approach for the development of existing talent. He has done an excellent and thorough piece of work, and much material is collected here which cannot be found easily in any other single volume.

A Textbook of Obstetrics. By Edward A. Schumann, A.B., M.D., F.A.C.S., Professor of Obstetrics, School of Medicine, University of Pennsylvania. Cloth. Price, $6.50. Pp. 780, with 581 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

The author has succeeded in writing a book on obstetrics which seems to omit little, if anything, of much practical importance. It is about half the size of the usual textbook of obstetrics. This has been accomplished by leaving out discussions of unproved theories and limiting those on the historical side of obstetrics. Great weight has been given to the mechanics of childbirth and its common complications, but the rarer conditions are only briefly sketched. The book is well illustrated. Among the numerous and fitting illustrations, one recognizes many that have been adapted from other books, but always with the proper credit line. There are chapters on the physiology of the fetus, the physiology of pregnancy, the diagnosis of pregnancy, the anatomy and physiology of labor, and the conduct of labor. In the chapter on analgesia and anesthesia in obstetrics, it is stated that the morphine-scopolamine combination was first advocated by Steinbuchel in 1902 and was much lauded by Gauss in 1906, who coined the happy term "dammerschlaf," or twilight sleep. Unfortunately the lay press took up the subject of relief of pain during labor and exaggerated its successes. The author believes, however, that morphine and scopolamine, with a modification of the original conduct of twilight sleep, gives more uniformly satisfactory results than any other form of analgesic agent of which he has knowledge. He also discusses the Gwathmey method, the use of nitrous oxide and oxygen, the use of the barbiturates, the use of ether, chloroform or ethylene, and spinal anesthesia. There are chapters on the toxemias of pregnancy, abortion, extra-uterine pregnancy, placenta praevia, anomalies of the birth canal, postpartum hemorrhage, puerperal sepsis, injuries and accidents of the infant, the obstetric forceps, and others.

The maternal mortality during the process of reproduction is said to vary from 0.4 to 0.7 per cent throughout the civilized world; in spite of the improvements in obstetric methods and teaching, these figures have not been lowered appreciably during the past quarter century. Lea has said that advances in sepsis and in surgical technic have been nearly balanced by the increased tendency to unwise operative intervention as the result of the confidence inspired by these advances. The author's object in preparing the book was to present the art and science

of obstetrics as it is regarded at this time. He mentions only to condemn the time honored custom of massaging the uterus after delivery, as well as the less harmful custom of holding the fundus. Nothing is gained, he says, by either practice and much harm from unnecessary traumatism may result. We are told that episiotomy was proposed by Ould as early as 1742 and has been followed "more or less" ever since. The author considers episiotomy valuable but by no means necessary in all patients. It is said that multiple births must be regarded as a reversion to lower mammalian forms and therefore in a measure pathologic. Since the Dionne quintuplets were born, there has come to light, it appears, the birth certificate of a family of sextuplets named Bushnell, who were born in Chicago, Sept. 15, 1866, which birth certificate, "if genuine," states that three boys and three girls were born. Of the six, three were living in January 1935, a fourth died a few years ago, and the two others considerably before, but all lived beyond infancy. Statistics are said to show that 3 per cent of cesarean scars rupture in succeeding labors, but these figures are subject to much correction. While the average gross maternal mortality following cesarean section, the author says, is somewhere near 10 per cent in the United States, the mortality in the great clinics of the country will range between 2 and 4 per cent. The elective cesarean section, if done before the onset of labor or immediately after labor in a well organized hospital, will carry a mortality of considerably under 1 per cent, but in the section of necessity, in neglected cases, this figure will rise to 6 or 7 per cent.

The author endeavors to avoid the use of proper names throughout the book but has appended a bibliography and index in the back. This book can be recommended for students and practitioners of medicine.

Chemie und Technik der Gegenwart. Herausgegeben von Dr. H. Carlsohn, Dozent an der Universität Leipzig. Band XV: Vitamine und Hormone und ihre technische Darstellung. Teil 1: Ergebnisse der Vitamin- und Hormonforschung. Von Dr. Hellmut Bredereck, Dozent an der Universität Leipzig. Paper. Price, 6 marks. Pp. 101. Leipzig: S. Hirzel, 1936.

The author of this treatise has attempted to cover the extremely difficult subjects of the chemistry of vitamins and hormones in the brief compass of a hundred page book. Considering the limitations of space and the voluminous literature on the subject, he has managed to include a surprising amount of valuable information; those desiring such a brief summary will find this book useful. Certain phases of the material considered here are more adequately presented elsewhere, in particular that relating to the sterols (vitamin D, estrogens, androgens, progesterone and the like); the recently published American monograph on the latter subject by Fieser (Chemistry of Natural Products Related to Phenanthrene, reviewed in THE JOURNAL, Aug. 29, 1936) is unsurpassed in any language. However, for a brief and graphic presentation of the broad fields of vitamins and hormones Bredereck's condensation may be recommended, provided the limitations of brevity are kept in mind.

The Fortieth Report on Food Products and the Twenty-Eighth Report on Drug Products, 1935. Connecticut Agricultural Experiment Station, Bulletin 388. Paper. Pp. 653-695. New Haven, 1936.

This is a brief summary of the control work and investigation during 1935 of the Department of Analytical Chemistry at the first experiment station to be founded in the United States. As usual, the bulletin of the Connecticut station contains information of interest to all health officials and to physicians and others interested in nutrition. There are tables showing the vitamin C content of orange juice and other orange products as determined by chemical titration, investigations on olive oil, spray residue on apples, an interesting statement on oranges bearing the stamped mark "color added" and numerous other items of interest. A number of drugs were tested to ascertain whether they came up to standard; it is encouraging to note the large number of products examined which were found satisfactory. There are brief summaries of the analyses of a number of "patent medicines" and cosmetics that were examined. The range of subjects covered is wide. The composition of a number of fruits of wild plants on which birds and other animals feed was determined in collaboration with the Bureau of Biological Survey. The report closes with a splendid description of the work of the Committee on Foods, now called the Council on Foods, of the American Medical Association.

On the Classification of Vibrio Choleræ and the Cholera-Like Vibrios. By Børge Heiberg. Translated from Danish by Dr. Gerda Seidelin Schnohr, with the assistance of Dr. G. Gregory Kayne. Paper. Pp. 181. Copenhagen: NYT Nordisk Forlag: Arnold Busck, 1935.

This study was conducted on the suggestion of Dr. Thorvald Madsen following a meeting in 1932 of the cholera committee appointed by the Office international d'hygiène publique, at which was discussed the problem of producing a standard cholera agglutinating serum for diagnostic purposes. A study was made of 384 strains collected from districts where cholera and cholera-like diseases are epidemic. Biochemical as well as agglutination tests have been made with these strains. The author concludes that at the present time it does not seem possible to produce a standard agglutinating serum, since many vibrios termed cholera-like have not been demonstrated to be pathogenic or to produce the clinical picture called Asiatic cholera. This work contains forty-three tables and a good bibliography.

Brain Reflexes and Laws of Existence. By William D. Hoffman. Cloth. Price, $10. Pp. 308. Los Angeles: Parkman Press, 1936.

This volume "endeavors to make clear all the branches of human actions and reactions, not only as applying to therapeutic principles, but to glimpse the principles that operate the universe" (p. 7). An ambitious aim, surely. But the informed reader closes the book with the conviction that the author has not been equal to either task. The central theme of the book is the well known fact that a happy and hopeful state of mind is favorable in the recovery from disease. But this well known principle, whatever the physiologic mechanisms may be, is so exaggerated by the author as to make fear a cause of cancer and relief from fear a cure of cancer. The author's mastery of neurology, physiology, physics and chemistry is not striking. His explanations of man's behavior in health and in disease are mainly verbalism. That a doctor's "personality" is a factor in inducing confidence and hope in his patients and that the latter are favorable to recovery is true, but why run this truth into the ground by making it a panacea? We do not serve science or society nor do we discourage quacks by going the latter 50-50 in unproved claims.

Aktive Entspannungsbehandlung: Ein neues therapeutisches Prinzip mit Berücksichtigung der Sprache und Atmung. Von Dr. med. Joh. Faust. Boards. Price, 5 marks. Pp. 112, with 20 illustrations. Stuttgart & Leipzig: Hippokrates-Verlag G. M. B. H., 1936.

This brochure deals with so-called active relaxation. Voluntary muscular relaxation is now well founded by physiologic experimentation and it seems to be of some therapeutic significance. The author attempts to show that the training of relaxation is in no way related to the methods of suggestion or hypnosis. He prescribes relaxation for various neuroses, especially those involving the breathing apparatus.

Urology in Women: A Handbook of Urinary Diseases in the Female Sex. By E. Catherine Lewis, M.S., F.R.C.S., Surgeon to the Royal Free Hospital, London. Second edition. Cloth. Price, $2.25. Pp. 100, with 31 illustrations. Baltimore: William Wood & Company, 1936.

This small monograph discusses in an excellent manner those urologic lesions which in a particular manner affect women. In this edition, sections are devoted to vesical neck obstructions and to endometriosis. Treatment has been accorded greater space and amplified discussion of the ureteral changes in pregnancy, and of prolapse and dilatation of the ureters, is acceptable. The illustrations are excellent and the arrangement and physical aspect of the book all that could be hoped for. The book will prove of value as a work of reference and will be especially appreciated by the experienced urologist and gynecologist.

Tonzilyarni zakhvoryuvannya: Khronichniy tonzilit, khroniosepsis, sepsis pislya angini. [By] A. I. Geshelin. [Tonsillar Infection: Chronic Tonsillitis, Chroniosepsis and Postanginal Sepsis.] Paper. Price, 1 ruble, 20 kopecks. Pp. 95. Kiev: Derzhavne medichne vidavnitstvo, 1936.

This is a monograph written in the Ukrainian language. It contains chapters on the anatomy, pathology, bacteriology and treatment of tonsillar infections. The author discusses sepsis of tonsillar origin and reviews the various concepts. The subject matter is well presented and the field is adequately reviewed.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Wills: Dysfunction of Endocrine Glands in Relation to Testamentary Capacity.—Clara Diesing executed a will bequeathing the major portion of her property to the defendants. She died about a year later and her will was probated. The plaintiffs brought this action to set aside the probate on the ground that the testatrix lacked testamentary capacity. From a judgment in favor of the plaintiffs, the defendants appealed to the Supreme Court of Iowa.

The theory of the case presented by the contestants was that, while the testatrix was not afflicted with any disease of the mind itself, "she was suffering from a congenital faulty development of the body and mind, associated with a perverted activity of the internal glandular system of the body, particularly the pituitary and thyroid glands." To establish their contention, the contestants propounded to expert witnesses hypothetical questions based on the testimony of lay witnesses with respect to the physical and mental characteristics, changes and developments of the testatrix from childhood to shortly before her death. The life history embodied in these questions, said the court, was adequate to form a valid basis for the expression of an opinion by the expert witnesses. Furthermore, the testimony of the expert witnesses, in the opinion of the court, was sufficient to show a permanent progressive impairment of mental as well as physical ability and to indicate that, at the time of the execution of the will, this impairment had proceeded to such an extent that the testatrix was a person of unsound mind and incapable of executing a valid will. The judgment in favor of the contestants was, therefore, affirmed. —*Diesing v. Spencer (Iowa), 266 N. W. 567.*

Paternity: Admissibility of Blood Grouping Tests to Determine Paternity.—The prosecutrix gave birth to an illegitimate baby and the defendant was named as the father. In a prosecution for rape, the defendant asked the trial court to require the prosecutrix and her baby to furnish a few drops of blood for the purpose of having it tested and compared with the blood of the defendant. By this test, the defendant maintained, it might be possible to demonstrate as a scientific fact the impossibility of his paternity. The trial court refused to order the test and the defendant was convicted of second degree rape. On appeal, the Supreme Court of South Dakota upheld the refusal of the trial court to order the test, holding:

> "That it does not sufficiently appear from the record in this case that modern medical science is agreed upon the transmissibility of blood characteristics to such an extent that it can be accepted as an unquestioned scientific fact that, if the blood groupings of the parents are known, the blood group of the offspring can be necessarily determined, or that, if the blood groupings of the mother and child are known, it can be accepted as a positively established scientific fact that the blood group of the father could not have been a certain specific characteristic group."—*State v. Damm (S. D.), 252 N. W. 7.*

A rehearing was granted in the case, limited to the ruling of the trial court with respect to the blood test.

Our former opinion, said the Supreme Court on rehearing, seems to have been widely accepted and understood as a holding that the reliability of the blood test was not as yet generally established or recognized by the consensus of expert opinion in the particular field of science wherein the matter lies. There was no intention in that opinion to express a conviction one way or the other on the abstract question of the reliability of the test as a matter of science. Our former opinion, continued the court, went no further than to hold that the record itself failed to establish the reliability of the blood test. In view of this misunderstanding of the purport of its former decision, the Supreme Court considered it advisable, on rehearing, to state that, in its opinion, the reliability of the blood test is definitely established as a matter of expert scientific opinion entertained by authorities in the field, and that the time has undoubtedly arrived when the results of such tests, made by competent persons and properly offered in evidence, should be deemed admissible in a court of justice whenever paternity is in issue. The foregoing statement was made because, in the words of the court: "We do not wish any misapprehension as to the views of this court by any possibility to deter other courts from accepting and acting upon a tenet of biological science which we are convinced is now fully ripe for acceptance in medico-legal cases."

All judicial powers, said the court, are vested in the courts, and the judiciary constitutes a separate, distinct and coordinate department of the government of the sovereign state. The primary function of the judiciary is the administration of justice, and justice can never be rightly administered unless truth is first ascertained as nearly as may be. The citizen holds his citizenship subject to the duty to furnish to the courts, from time to time and within reasonable limits, such assistance as the courts may demand of him in their efforts to ascertain truth in controversies before them. This is just as much a part of the citizen's inescapable duty of supporting his government as is military service in time of war, or any other like obligation. The court could perceive no valid reason why courts of record may not require of any person within their jurisdiction the furnishing of a few drops of blood for test purposes when so to do will or may materially assist in administering justice in a pending matter. The order for such test should be adequately safeguarded. The order should not issue as a matter of absolute right but in the sound discretion of the court. A trial judge should not be a mere umpire presiding over a game of skill conducted by counsel, and the court could conceive of no valid reason why a trial judge might not of his own motion in a given case, if he thought it likely to be helpful, order the making of a blood test by a competent person and a report thereon under oath subject to cross-examination by both parties. Recapitulating its views, the court said—

> We think (1) the reliability of the blood test is universally conceded by competent scientific authorities; (2) a trial court of record in this state has inherent power and authority, in its reviewable discretion, to order the taking of blood for such purposes in cases where paternity is an issue and where, in the opinion of the court, the making and reporting of such test will be, or is likely to be, helpful in ascertaining the truth.

Notwithstanding the foregoing views, the Supreme Court felt impelled to hold that the trial court did not err in refusing to make the order requested. The case, the Supreme Court observed, was tried in October 1931, and the literature on the topic of the scientific reliability of the blood test appeared for the most part subsequent to that date. We are far from willing, the court said, to say that it was error for a trial judge in South Dakota, at the time of the trial of this case, to fail or refuse to take judicial notice of such reliability. If such reliability was not, at the time of the trial of the case, a matter which the trial court was obligated judicially to notice, then it was necessary for the applicant for the order to prove such reliability by proper and satisfactory expert testimony. This he failed to do. Furthermore, there was no adequate showing that if the requested order was granted the defendant could and would have the tests made by a competent, capable and experienced person. The judgment of the trial court was consequently affirmed.—*State v. Damm (S. D.), 266 N. W. 667.*

Society Proceedings

COMING MEETINGS

American Academy of Orthopedic Surgeons, Cleveland, Jan. 11-13. Dr. Philip Lewin, 55 East Washington St., Chicago, Secretary.

American Orthopsychiatric Association, New York, Feb. 18-20. Dr. George S. Stevenson, 50 West 50th St., New York, Secretary.

Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15-16. Dr. William D. Cutter, 535 North Dearborn St., Chicago, Secretary.

Middle Section, American Laryngological, Rhinological and Otological Society, Chicago, Jan. 11. Dr. Alfred Lewy, 25 East Washington St., Chicago, Chairman.

Mid-Western Section, American Laryngological, Rhinological and Otological Society, Chicago, Jan. 11. Dr. Frederick A. Figi, 436 Tenth Ave., S.W., Rochester, Minn., Chairman.

Pacific Coast Surgical Association, Seattle, Wash., and Victoria, B. C., Feb. 24-27. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, Memphis, Tenn., Jan. 13. Dr. Charles D. Blassingame, Physicians and Surgeons Bldg., Memphis, Tenn., Chairman.

Western Section, American Laryngological, Rhinological and Otological Society, San Diego, Calif., Jan. 30-31. Dr. David R. Higbee, 3245 Fourth Ave., San Diego, Calif., Chairman.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

32: 727-910 (Nov.) 1936

Rôle of Lower Uterine Soft Parts in Labor. W. E. Caldwell, H. C. Moloy and A. D'Esopo, New York.—p. 727.
Clinical Review of 110 Cases of Ovarian Carcinoma. F. W. Lynch, San Francisco.—p. 753.
*Iliac Lymphadenectomy Plus Radiation in Borderline Cancer of Cervix. F. J. Taussig, St. Louis.—p. 777.
Premature Rupture of Membranes as Means of Inducing Labor. E. D. Plass and C. W. Seibert, Iowa City.—p. 785.
Study of One Thousand Placentas. W. B. Harer, Philadelphia.—p. 794.
Bacteriologic Study of 500 Consecutive Abortions, with Treatment and Results. T. K. Brown and G. A. Hunt, St. Louis.—p. 804.
Similarity in Cervix of Rhesus Monkey and Woman. R. L. Dickinson, New York, and C. G. Hartman, Baltimore.—p. 813.
Observations on Ovulation in Primates. A. H. Morse and G. van Wagenen, New Haven, Conn.—p. 823.
Size and Shape of Pelvic Inlet as Determined by Direct Measurement. E. A. Schumann, Philadelphia.—p. 832.
*Investigation of New Pentavalent Arsenical, Aldarsone, in Treatment of Trichomonas Vaginitis. P. B. Bland and A. E. Rakoff, Philadelphia.—p. 835.
Management of Secondary Amenorrhea of Functional Origin. A. B. Tamis, New York.—p. 845.
Cell Volume Following Delivery and Its Relation to Blood Loss and Postpartum Infection. J. B. Pastore, New York.—p. 859.
Traumatic Gynatresia. F. A. Kassebohm and M. J. Schreiber, New York.—p. 869.
Parental Age Difference and Conception of Congenitally Malformed Children: Study of 600 Families. D. P. Murphy, Philadelphia.—p. 873.
Critical Analysis of First 3,060 Cases Delivered at the Bronx Hospital. J. I. Kushner, New York.—p. 874.
Interstitial Pregnancy: Case with Early Rupture, Treated by Vaginal Operation. T. K. Reeves, Pittsburgh.—p. 880.
Epithelioma of Clitoris. Sonya Arina Monen, Brooklyn.—p. 882.
New All Metal Umbilical Cord Clamp. C. E. Ziegler, Pittsburgh.—p. 884.

Iliac Lymphadenectomy and Irradiation in Cancer of Cervix.—Taussig has combined irradiation of the primary lesion with surgical removal of a large portion of the tributary lymph glands in forty-six cases of borderline cancer of the cervix. The first case, done in October 1930, with cancer metastasis in the hypogastric lymph glands, is still free of recurrence. Careful selection of cases is a prime requisite to success. The patient must be a good operative risk. Disease of the heart or kidneys, obesity, debility and extreme age are contraindications. There have been two deaths among the forty-six patients operated on. Recently when heavy irradiation preceded the operation the author found that the lymph glands were more likely to be adherent and difficult to remove. Hence he advises from 1,000 to 1,500 roentgens of high voltage therapy spread over two weeks. Two weeks after this series is concluded, iliac lymphadenectomy is done. Two weeks after operation an intra-uterine application of 150 mg. of radium in gold capsules totaling from about 4,000 to 5,000 mg. hours is made. An additional 2,000 to 2,500 roentgens of high voltage therapy should follow the radium treatment. Glandular metastasis was found fifteen times in the forty-six cases. In these cases 194 glands were removed and subjected to careful microscopic study. Of the nineteen patients operated on two or more years ago, compared with seventy-six patients treated with a similar dose of radiation but without lymph gland removal, the survival curve remains definitely higher in the group of lymphadenectomies. Of ten patients treated more than four years ago compared with thirty-five patients whose cancer showed the same stage of involvement not operated on but irradiated by the same method during the same period, the percentage of survival was found to be approximately twice as great in the operative cases as in those in which irradiation alone was given. His experience of the last five years has convinced the author that iliac lymphadenectomy in the hands of a competent surgeon, done on patients that are good operative risks with only partial cancerous involvement of the broad ligaments, is a relatively simple and harmless procedure and gives an increased chance of survival and cure that definitely justified the surgical intervention.

New Arsenical in Treatment of Trichomonas Vaginitis.—Bland and Rakoff used sodium methylenesulfonaminohydroxyphenylarsonate in the treatment of 100 cases of Trichomonas vaginitis. Studies in vitro indicated that the compound has a definite trichomonadicidal power, which is many times that of acetarsone and is not inhibited by human blood serum. Treatment consisted of the insufflation of 0.5 Gm. of the drug, diluted with kaolin, following preliminary cleansing of the vagina and vulva with a diluted tincture of green soap and water, and instillation of tincture of metaphen into the cervix and of aqueous solution of metaphen, 1:500, into the urethra. Ninety-one women remained free from Trichomonas vaginitis during a period of from three to nine months following treatment. Of the eighty-four women who remained negative after a series of six treatments, five required an additional series of six treatments and two were cured after two additional series of treatments. Of twenty-five women treated by a similar technic with acetarsone, only twelve remained free from Trichomonas vaginitis while thirteen had repeated recurrences. Clinical experience and laboratory studies indicate that the new drug is superior to acetarsone in the treatment of Trichomonas vaginitis.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

36: 437-574 (Oct.) 1936

Early Experiences with Radium: Janeway Memorial Lecture. C. F. Burnam, Baltimore.—p. 437.
Qualifications for Practice of Radium Therapy. G. W. Grier, Pittsburgh.—p. 453.
Limitations of Radium Therapy in Cancer of Cervix. P. Findley, Omaha.—p. 457.
Clinical Results and Histologic Changes Following Radiation Treatment of Cancer of Corpus Uteri. A. N. Arneson, St. Louis.—p. 461.
Calculation of Dosage in Radium Treatment of Carcinoma of Cervix. C. D. Lucas, Charlotte, N. C.—p. 477.
*Serious Complications Encountered During Treatment of Carcinoma of Uterine Cervix. H. H. Bowing and R. E. Fricke, Rochester, Minn.—p. 490.
Late Effects of Irradiation of Thymus. D. S. Polk and Elizabeth Kirk Rose, Philadelphia.—p. 498.
*Radiation Sickness: Its Possible Cause and Prevention. H. F. Friedman and P. Drinker, Boston.—p. 503.
Causes of Roentgen-Ray Dermatitis Among Physicians. E. T. Leddy, Rochester, Minn.—p. 510.
Osteopoikilosis: Five Year Study. L. E. Holly, Muskegon, Mich.—p. 512.
Cholecystic-Colonic Fistula. I. S. Startz, Elmhurst, N. Y.—p. 518.
Thoracopagus: Case Report. A. R. Maddox and W. E. Allen Jr., St. Louis.—p. 521.
Aneurysm of Abdominal Aorta: Report of Case Exhibiting Annular Calcifications. A. S. Unger and M. H. Poppel, New York.—p. 523.
Characteristics of Roentgen-Ray Equipment at Voltages in Excess of 200,000. M. J. Gross, Chicago.—p. 525.
Factors Influencing Quantitative Measurement of Roentgen-Ray Absorption of Tooth Slabs: VI. Miscellaneous Film Factors. H. C. Hodge, G. Van Huysen, R. B. Wilsey and S. L. Warren, Rochester, N. Y.—p. 531.

Complications of Carcinoma of Cervix.—Bowing and Fricke planned radium treatment for 495 patients who had carcinoma of the cervix. In about 90 per cent of these cases the lesions were inoperable. In spite of careful studies of each patient and the planning of treatment that would not unduly tax the patient's reserve, major complications occurred in 5.6 per cent of these cases, and death occurred in six cases. Much in the way of prevention of serious pelvic cellulitis and peritonitis can be accomplished by daily cleansing of the cervical lesion if considerable infection is evident. Hemorrhage requires more vigorous management. Rectovaginal or vesicovaginal fistulas are rarely seen except as a late result of the malignant process. Proctitis is another serious complication which often is attributable to irradiation, although it may result from perirectal extension of the growth. Lymph stasis with edema of one or both legs is occasionally encountered in late stages of the disease, in cases in which massive infiltration and a "frozen pelvis" are present. Rest and elevation of the part, and the administration of sedatives offer some alleviation. Elevation of temperature, which frequently is seen in the course of treatment, in most cases is the result of the infected cervical lesions. Major complications usually are the result of acute inflam-

matory processes and infection that accompany the malignant condition. Treatment with divided doses of radium affords a good opportunity to forestall or control these complications. The treatments are given gradually during three weeks and the dosage is attuned to the radiosensitivity of the lesion and to the strength of the individual to tolerate the procedure. At the first intimation of danger, the treatment should be discontinued and the proper steps should be taken to overcome the impending complication.

Radiation Sickness.—In their search for an extraneous factor other than ozone or other gases as the cause of radiation sickness, Friedman and Drinker determined the ion concentration of their treatment rooms and the quantity and quality of the gases present. These experiments showed a high concentration of ions with the positive ions predominating and traces of ozone and nitrous gases; the probability of any one or all of them being a cause of radiation sickness could be determined easily. Through a number of experiments it was found that by wearing a simple type of mask, one that was known to absorb ozone and other gases, several patients who were subject to radiation sickness were relieved. A commercial make of chemical cartridge respirator with a charcoal cartridge was furnished to one patient and gave her immediate relief. The cartridge containing charcoal was replaced by wire cloth of a very fine mesh, which was inserted at the entrance to the mask and grounded. This device was found to be just as satisfactory as the mask with charcoal. The experiments tend to show that of the air factors only ions enter into the production of radiation sickness. These in high concentration in addition to roentgen irradiation to the body are necessary for the production of true radiation sickness. The factor of gases has been eliminated. A mask with a rubber face piece and wire cloth is the simplest and cheapest. The face piece can be wiped off with alcohol or washed and reused immediately. It is advisable to use a face piece with both inhalation and exhalation valves, as then there is no rebreathing.

American Review of Tuberculosis, New York

34: 561-712 (Nov.) 1936

Oleothorax in Collapse Therapy of Pulmonary Tuberculosis: Experimental and Clinical Study with Review of Literature. M. Joannides, Chicago.—p. 561.
Manometric Readings of Intrapleural Pressures in Artificial Pneumothorax: Discussion of Principles and Factors Involved, with Plea for Uniform Methods of Reading and Recording Intrapleural Pressures. A. Peters, Springfield, Mass.; A. S. Pope, Boston, and J. C. Hudson.—p. 614.
*Influence of Artificial Pneumothorax on Bacillary Count in Open Cases of Pulmonary Tuberculosis. E. Bunta, Chicago.—p. 627.
Blocked Pulmonary Cavity: Anatomic, Roentgenologic and Clinical Study. D. Salkin, A. V. Cadden, Hopemont, W. Va., and R. B. McIndoe, Howell, Mich.—p. 634.
Postmortem Bronchography. D. Salkin, A. V. Cadden, Hopemont, W. Va., and R. B. McIndoe, Howell, Mich.—p. 649.
*Punch Biopsy in Diagnosis of Tuberculosis of Knee Joint. M. Burman, H. Finkelstein and L. Mayer, New York.—p. 663.
Tuberculous Tracheobronchitis: Rôle of Bronchoscopy. P. S. Samson, Ann Arbor, Mich.—p. 671.
Anthracosilicosis and Tuberculosis. M. J. Sokoloff, Philadelphia.—p. 700.

Influence of Artificial Pneumothorax on Bacillary Count in Pulmonary Tuberculosis.—Bunta discusses the influence of artificial pneumothorax, in relation to time, on the bacillary count preceding conversion in positive sputum cases of pulmonary tuberculosis, particularly those showing unilateral cavitated lesions with and without complicating pleural adhesions on the collapsed side, and those showing bilateral pulmonary cavitation. The material for study included 13,839 sputum reports on 506 pneumothorax-treated open cases of pulmonary tuberculosis, and 4,993 sputum reports on 642 officially registered open pulmonary cases in which no form of collapse therapy was given. A decrease in the bacillary count with increments of time was observed in both pneumothorax-treated and nonpulmonary collapse or control patients. Pneumothorax-treated patients in general showed a more direct and sustained decrease in the number of tubercle bacilli and advancement toward the conversion level with elapsing time, as compared to the control group. All treated cases, except the group with bilateral pulmonary cavitation, showed a more direct reduction in bacillary numbers from the seventh to the ninth month than in the succeeding months of treatment. From the standpoint of time, the most direct decrease in the bacillary count and earliest approximation to the conversion level was evidenced in nonpleural adhesion cases with cavities limited to the treated lung, and the least diminished count or approach to the conversion level in the pneumothorax cases with bilateral pulmonary cavitation. Pleural adhesions, on the other hand, exercised an inhibiting influence on bacillary reduction, though relatively less so than the cases with bilateral cavitation.

Punch Biopsy in Diagnosis of Tuberculosis of Knee.—Burman and his associates obtained six biopsy specimens positive for tuberculosis in eight cases of tuberculosis of the knee joint, through the same puncture wound used for arthroscopy. In a woman of 35, who had been treated for villous synovitis for two years, a frozen section of the biopsy specimen revealed the presence of tuberculosis and an immediate fusion was accordingly done. No guinea-pig inoculation or tuberculin test had been done previously in her case. The biopsy specimen is a tolerably accurate measure of the specificity or nonspecificity of the disease process within the joint. It is sometimes quite difficult to prove the tuberculous nature of the disease process in the knee joint. Any method that offers a fair chance of success, both negatively and positively, should be used. Guinea-pig inoculation and the demonstration of the tubercle bacillus are the only other positive methods, besides the histopathologic picture of tuberculosis. The authors procure material from a joint suspected of being tuberculous for culture and guinea-pig inoculation by using the saline washings of the joint, after the fluid has been instilled into the joint for some minutes. In a child in whom the removal of a biopsy specimen was objected to, the saline washings injected into a guinea-pig confirmed a suspected diagnosis of tuberculosis. They can offer no exact figures of failure or success; but, if it succeeds once, it can succeed again, especially in joints without fluid. The trauma of examination by arthroscopy followed by the removal of biopsy specimens is not damaging to the knee. In two acutely inflamed joints, these procedures were done without perceptible alteration in the state of the joint or alteration of the temperature curve for the worse.

Annals of Medical History, New York

8: 477-576 (Nov.) 1936

Benjamin Smith Barton. W. S. Middleton, Madison, Wis.—p. 477.
History of Digitalis Therapy. M. S. Jacobs, Philadelphia.—p. 492.
Brief Consideration of History of Development of Mastoidectomy. R. Sonnenschein, Chicago.—p. 500.
Psychiatry in Art. C. E. Trapp and Mary C. Trapp, Boston.—p. 511.
Forerunner of Psychiatric Nursing: Joan-Baptiste Pussin (1746-18—?). Elizabeth S. Bixler, Worcester, Mass.—p. 518.
The Doctor on the Stage: Medicine and Medical Men in Seventeenth Century English Drama. H. Silvette, University, Va.—p. 520.
A Meeting Which Never Took Place: A Play in Half an Act. W. B. Howell, Montreal.—p. 541.
Historical Notes on Foreign Bodies in Air Passages. L. H. Clerf, Philadelphia.—p. 547.
Pulmonary Pathology in the Talmud. H. H. Harris and T. N. Harris, Philadelphia.—p. 553.
War and Science: Rudolph Virchow. L. Goldman, Cincinnati.—p. 558.

Annals of Surgery, Philadelphia

104: 801-960 (Nov.) 1936

*Destruction of Cerebral Cortex Following Nitrous Oxide-Oxygen Anesthesia. K. Lowenberg, R. Waggoner, Ann Arbor, Mich., and T. Zbinden, Toledo, Ohio.—p. 801.
Physiology of Massive Pulmonary Embolism: Experimental Study of Changes Produced by Obstruction to Flow of Blood Through Pulmonary Artery and Its Lobar Branches. J. H. Gibbon Jr., Philadelphia, and E. D. Churchill, Boston.—p. 811.
Pulmonary Embolectomy. P. Shambaugh, Chicago.—p. 823.
Acute Perforation of Gastrojejunal Ulcer: Report of Ten New Cases and Review of Ninety-Three Collected Cases. C. G. Toland and H. L. Thompson, Los Angeles.—p. 827.
Late Results in Acute Perforated Peptic Ulcer Treated by Simple Closure. M. A. Sallick, New York.—p. 853.
Obstructions About Mesentery in Infants. J. J. Morton and T. B. Jones, Rochester, N. Y.—p. 864.
*Splenectomy for Hemoclastic Crises. G. M. Curtis, C. A. Doan and B. K. Wiseman, Columbus, Ohio.—p. 892.
Anatomic Restudy of Pelvic Lymphatics. J. P. Nesselrod, Rochester, Minn.—p. 905.
Transurethral Resection. H. L. Kretschmer, Chicago.—p. 917.
*Relief of Pain by Peripheral Nerve Block in Arterial Diseases of Lower Extremities. B. C. Smith, New York.—p. 934.
Nerve Injury in Fracture of Pelvis. C. R. Lam, Detroit.—p. 945.
Influence of Heredity in Cancer. H. F. Graham, Brooklyn.—p. 952.

Destruction of Cerebral Cortex Following Nitrous Oxide-Oxygen Anesthesia.—Lowenberg and his associates report three cases in which there was destruction of the cortex

and basal ganglions following the use of nitrous oxide-oxygen anesthesia. Death during nitrous oxide-oxygen anesthesia has occurred following narcoses of varying duration. In some instances the duration of the narcosis is not given, but it can be assumed that it was not long, since the anesthetic was used for minor operations; for example, extraction of teeth. In fatal cases the respiration ceases suddenly and without warning. The relation of the failure of circulation to that of respiration varies. Three of the authors' cases belong to the group with a fatal outcome after hours, days or weeks. The respiration ceased suddenly in two patients and gradually in one, but the failure of respiration was not permanent. It was reestablished after ten minutes in one patient and after forty minutes in two. In none of these cases did respiration or circulation return to normal. The respiration was labored. The pulse rate varied from 120 to 160. The blood pressure dropped slightly in two patients but soon returned to normal. There was a marked elevation of temperature in all instances (from 105 to 108 F.). Convulsions, muscular twitchings and hypertonicity of the extremities and the trunk were present in all three cases. Death occurred after sixty, seventy-two and 119 hours, respectively. From the neurologic observations in the three fatal cases, the authors assume that death was due to the destruction of brain parenchyma. The two possible causes of this destruction may be asphyxia and the toxic effect of the gas. The asphyxia might be produced by anoxemia due to low oxygen content of the blood or to anoxemia due to collapse of the brain capillaries. Anoxemia due to oxygen deprivation should be relieved promptly by the administration of oxygen and is therefore not dangerous. Collapse of the capillaries associated with stasis and anoxemia as a responsible cause of degeneration of the parenchyma is suggested by the histologic picture, in that a definite selective destruction is noted, the cortex and the basal ganglions being much more severely damaged than the brain stem and the cerebellum, resulting in a clinical picture of decortification. Destruction of this type is frequently a toxic manifestation, and a similarity has been observed in cases of poisoning by excessive doses of pantopon (a mixture of opium and alkaloids) or/and morphine. Therefore, death may be due to extensive destruction of the cortex and basal ganglions rather than to involvement of the respiratory area alone.

Splenectomy for Hemoclastic Crises.—Curtis and his collaborators present the clinical evidence of eight patients in whom splenectomy was successful during an acute hemoclastic crisis. Six of the patients had congenital hemolytic icterus; two had thrombopenic purpura. The outcome supports the rationale of splenectomy in the treatment of properly selected and prepared patients suffering from hemolytic icterus or thrombopenic purpura of splenic origin. The authors attribute their success to careful differential diagnostic studies, optimal preoperative management and the application of modern surgical knowledge to the problem.

Relief of Pain in Arterial Diseases of Lower Extremities.—Smith treated forty-six cases of ulceration and gangrene in the lower extremities caused by occlusive arterial diseases by peripheral nerve block in the lower third of the leg. The operations were performed by exposing the nerves and blocking them with either injection of alcohol and crushing, division, or division and sutures or by crushing from 2 to 6 mm. of the nerve. Peripheral nerve block is an anatomic operation and should not be attempted until the operator has familiarized himself with the exact local anatomy. Poor wound healing may be attributed to extensive dissection because of lack of anatomic knowledge and failure to appreciate the amount of operative trauma these tissues will tolerate. Perfection of operative technic on anatomic specimens is recommended before the operation is attempted clinically. The procedure saved 50 per cent of the arteriosclerosis patients and 20 per cent of the arteriosclerotic with diabetes from a major amputation. No leg amputations were performed in the thrombo-angiitis group. The release of vasoconstriction by block increased the local temperature in the anesthetized area to varying degrees in the thrombo-angiitis cases, depending on the degree of arterial occlusion and spasm in the wall of the vessel. It made dressings, treatments, postural exercises, warm whirlpool baths, irrigation with diluted solution of sodium hypochlorite, excision of sloughs and osteomyelitic sequestrums and drainage of local abscesses possible without subjecting the patient to multiple general anesthesias. Proper foot hygiene and shoes are necessary in order to prevent trophic ulceration in the insensitive member. Patients should be particularly warned not to expose the insensitive part to any form of heat. The relief of pain during wound healing has freed patients from sedatives, improved their appetites, increased their weight and permitted normal function of their gastro-intestinal and genito-urinary tracts which were interfered with by sedatives. Restful sleep has improved cerebral disorientation. Paralysis of the intrinsic muscles of the foot, which follows any type of nerve block, has not interfered with normal locomotion.

Archives of Internal Medicine, Chicago

58: 765-956 (Nov.) 1936

Can Neurologic Complications of Pernicious Anemia Be Prevented? W. Needles, New York.—p. 765.
*Postural Hypotension, with Particular Reference to Its Occurrence in Disease of Central Nervous System. L. B. Ellis and Florence W. Haynes, Boston.—p. 773.
Treatment of Typhoid with Antitoxic Antityphoid Serum. G. Shwartzman and G. Baehr, New York, and W. Y. Hollingsworth, Detroit.—p. 799.
Alternation of Heart Sounds. P. Cossio, M. Lascalea and E. G. Fongi, Buenos Aires, Argentina, South America.—p. 812.
*Nephrosis with Uremia Following Transfusion with Incompatible Blood: Report of Seven Cases with Three Deaths. W. Goldring and I. Graef, New York.—p. 825.
Hyperparathyroidism Complicated by Hyperthyroidism: Report of Case. J. F. Noble and J. F. Borg, St. Paul.—p. 846.
Clinical Significance of Cholesterol Partition of Blood Plasma in Hepatic and in Biliary Diseases. E. Z. Epstein and E. B. Greenspan, New York.—p. 860.
Actions of Diuretic Drugs and Changes in Metabolites in Edematous Patients. A. B. Stockton, San Francisco.—p. 891.
Syphilis: Review of Recent Literature. P. Padget and J. E. Moore, Baltimore.—p. 901.

Postural Hypotension and Disease of Central Nervous System.—Ellis and Haynes observed six patients with postural hypotension. In four there was definite evidence of neurologic disease (tabes dorsalis, syringomyelia and hematomyelia), and in an additional case there was some evidence of involvement of the central nervous system. The vascular responses were tested, and in two patients measurements of the circulatory dynamics were made. The total blood flow was found to be well maintained when the patient was in the erect position. Ephedrine was the most effective in relieving the symptoms. The effect of postural change on the blood pressure of patients with tabes dorsalis, combined system disease and miscellaneous neurologic lesions was studied. Ten of seventeen successive tabetic patients had an abnormal postural response of the blood pressure. Postural hypotension results from a failure of the normal sympathetic vasomotor reflex to produce vasoconstriction when the subject assumes an erect position. The center controlling this reflex lies in the brain and not in the spinal cord. Since the disturbance is widespread, the site of the lesion is either in a sympathetic center or in an afferent pathway controlling the entire response, or it is generalized throughout the efferent pathways or nerve endings. It is probable that multiple etiologic causes exist, but many instances of postural hypotension are associated with disease of the central nervous system.

Nephrosis Following Transfusion with Incompatible Blood.—Goldring and Graef point out that of about 2,000 transfusions performed during the last six years in the third medical and surgical divisions of Bellevue Hospital seven reactions of incompatibility occurred. There appeared to be no striking relationship between the amount of blood transfused and the severity of the reaction. Two patients who received 400 cc. died, whereas three patients who received 500 cc. recovered. Furthermore, a patient who received 200 cc. had a more severe and protracted course than one who received 500 cc. Three patients died, on the seventh, fourteenth and nineteenth days respectively. A prompt and marked diminution in the output of urine occurred in every instance. The longest duration of marked oliguria before the onset of diuresis and recovery was sixteen days. Slight but distinct icterus appeared in five of the seven patients and lasted for from five to fourteen days. When some urine was voided directly after the transfusion it invariably contained what was believed to

be hemoglobin or its derivatives. The blood pressure was not elevated, and generalized edema appeared in two patients, but only after infusion of large amounts of saline and dextrose solutions. While the ultimate cause of some of the manifestations must be considered as still unexplained, there can be little doubt that the syndrome is initiated by hemolysis of the donor's red blood cells. There is a striking similarity to the suppression of urine and uremia seen in cases of severe blackwater fever, even with regard to the histopathologic changes in the kidneys. The essential lesions consist of tubular dilatation and some degeneration (particularly affecting the epithelium of Henle's loop and the distal convoluted tubule) with interstitial edema, a picture suggestive of mercurial nephrosis. The degree of tubular damage observed varies with the time of death. The distinctive feature is the formation of peculiar obstructing pigment casts in the distal tubular segments. The changes observed in the tubules in the fatal cases apparently represented late stages in the events following a hemolytic reaction. The peculiar eosinophilic casts present in the convoluted tubules and in the Henle loops must contain hemoglobin or one of its degradation products, because of the color of these casts in unstained sections and their positive reaction with benzidine by Lepehne's method for staining hemoglobin in histologic preparations.

California and Western Medicine, San Francisco

45: 377-448 (Nov.) 1936

Injection Treatment of Hernia: Its Experimental Basis. F. I. Harris and A. S. White, San Francisco.—p. 382.
Treatment of Hernia by Injection Method. F. R. Girard, San Francisco.—p. 385.
Injection Treatment of Hernia: Its Present Day Status. F. I. Harris and A. S. White, San Francisco.—p. 391.
Arthritis: A Medical Problem. R. S. Peers, Oakland.—p. 399.
Hyperpyrexia as an Adjunct in Treatment of Cerebrospinal and Kahn-Fast Syphilis. J. E. Potter, Bremerton, Wash.; F. H. Redewill and E. G. Longley, San Francisco.—p. 402.
Cancer Clinics in Small Hospitals. Zera E. Bolin, San Francisco.—p. 409.
Fallacious Trends in Psychiatry. W. Edler, Pasadena.—p. 412.

Canadian Medical Association Journal, Montreal

35: 475-592 (Nov.) 1936

The Mind and Character of Lister. E. Archibald, Montreal.—p. 475.
Radiologic Treatment of Cancer 1929-1935: IV. Carcinoma of Lips. G. E. Richards, Toronto.—p. 490.
Effect of Administration of Estrogenic Hormones on Nasal Mucosa of Monkey (Macaca Mulatta). H. Mortimer, R. P. Wright and J. B. Collip, Montreal.—p. 503.
Studies in Mineral Metabolism: II. Calcium and Kidney: Experimental I. B. Chown, Margaret Lee and J. Teal, Winnipeg, Manit.—p. 513.
Certain Interesting Cases of Hematuria. N. E. Berry, Kingston, Ont.—p. 516.
*Tuberculosis of the Breast. W. E. B. Hall, St. Joseph, Mo.—p. 520.
*Insulin, Old and New, in Treatment of Diabetes. E. P. Joslin, Boston.—p. 526.
Present-Day Methods of Treatment of Carcinoma of Breast: Indications for Use of Each Method. R. M. Janes, Toronto.—p. 531.
Etherington-Wilson Technic in Intrathecal Segmental Analgesia. W. Bourne and P. E. O'Shaughnessy, Montreal.—p. 536.
Mental Hygiene and Its Relation to Infants and Children. R. P. Kinsman, Vancouver, B. C.—p. 540.
Vitamin A Content of Some Medicinal Cod Liver Oils Sold in Edmonton. W. D. McFarlane and L. Rudolph, Edmonton, Alta.—p. 542.

Tuberculosis of Breast.—Hall cites three cases of tuberculosis of the breast that demonstrate the pathologic mode of invasion and infection. To date there has been no report of a necropsy in which tuberculosis has been confined to the breast with no evidence of infection elsewhere. The disease appears most frequently between the ages of 20 and 50. There is little difference with regard to the breast involved. Child bearing does not appear to be a gross factor, since 201 of 545 were nulliparous patients. It has been the belief of many that this type of infection is due to the bovine type of tubercle bacillus. The infection is transmitted to the breast tissue by various channels: contiguity, surface contact, ductal, blood borne and lymphatic. Tuberculosis of the breast is similar to the infection elsewhere in the body, as acute miliary mastitis, nodular tuberculous mastitis, sclerosing tuberculosis of the breast and chronic obliterative tuberculous mastitis occur. Excluding those patients who are evident victims of a generalized infection, tuberculosis of the breast may be subdivided according to the rate of involvement and to the fibrous tissue response. The signs and symptoms vary widely, but the first and most important is a lump in the breast. Pain usually appears very late in the disease and was reported in only 6 per cent of the early cases. An occasional early complaint is that of tender nipple. The lump usually develops steadily, sometimes rapidly, and in no case has spontaneous regression been known. The disseminated nodular type grows very slowly and is painless. The sclerosing type exhibits a distorted breast with retracted nipple. Definite diagnosis is difficult at all times and must be differentiated from galactocele, chronic mastitis, and benign and malignant breast tumors. The prognosis is hopeless if untreated, usually following a rapid and fatal course, but if the lesion or lesions are excised totally it may be excellent. Treatment is always surgical, with immediate frozen section to establish the diagnosis and remove the patient's fear of cancer; also removal is essential, as the disease, once started, never regresses, whether it is left alone or treated by any of a number of means. Excision of the tumor, dissection of axillary glands and partial mastectomy may be satisfactory if the lesion is benign or if the diagnosis of tuberculosis of the breast is reasonably certain as determined by biopsy or culture of the pus from a sinus, or if the operation is supplemented by frozen section. Summarized, excision of tuberculous breast lesions together with whatever obvious lymphatic extensions are present will be quite satisfactory. If a considerable part of the breast is involved, mastectomy is advised. If there is any suggestion of axillary involvement, these glands should be removed. Only healthy tissue should be left, careful hemostasis effected and well nourished tissue brought in contact with well nourished tissue, obliterating all dead space. Drains, if used, are removed the first day after operation. An immobilizing bandage, affording light pressure, is applied, and, when possible, the wound is left alone for from twelve to fourteen days.

Old and New Insulin in Treatment of Diabetes.—Joslin has computed the expectation of life of his diabetic patients at 10, 30 and 50 years of age for two periods, 1897-1914 and 1926-1929. For children at 10 years in the earlier period the average expectancy was 1.5 years, but now it is 31.7 years. The expectancies for the two similar periods at 30 years of age are 4.2 and 22.7 years, and for the age of 50 years 8.1 and 13.2 years, respectively. A study of the records of diabetic physicians shows that it is worth while to teach a diabetic patient a good deal about his ailment. Since the introduction of insulin, diabetic coma has practically disappeared as a cause of death among physicians. It has amounted to but 3 per cent. This is all the more notable because diabetic coma when it develops in adult life is a serious complication, and recoveries are far less frequent than in childhood. The education of diabetic patients can be accomplished by books, moving pictures, class teaching and individual instruction, but perhaps most of all they can profit from contact with other patients. The personal element and the spoken word are the most important, because what one type of diabetic subject needs would be superfluous for another. Of more than 100 patients receiving protamine insulin not one has developed coma, acidosis or any complication common to the diabetic, such as lesions of the feet or skin. The number of doses has been reduced from six to one or two daily. The author considers protamine insulin a real advance in the treatment of diabetes, but he does not believe that the best methods of employing it are known, nor does he think that it should be distributed yet for general use. The old insulin is understood and it is known that it always works. Confidence in insulin must not be undermined by giving to practitioners a preparation the action of which is not thoroughly understood, though it may be better in some respects. The technic of manufacture of protamine insulin is improving and the results with the newer preparations are becoming more uniform. Administration of protamine insulin can be improved. It is not a matter of indifference to inject 20 units of old insulin twice a day and then change over to the injection of 40 or 50 units of protamine insulin in a single dose. More pains must be taken with the actual technic of injection, and the sites for the injection must also be selected more carefully. The strength of the preparation may be important. The single doses of protamine insulin are larger and therefore U-40 insulin is too bulky, but just how U-80 protamine insulin will act the author does not know. Perhaps one should never inject more

than 1 cc. of insulin at any one site. Protamine insulin works successfully even if the carbohydrate in the diet varies from 100 to 275 Gm. The more complete control of the disease, which the new insulin makes possible, may so raise the standard of bodily health that the diabetic patient will be less subject to the various so-called diabetic complications and will resist them more successfully.

Illinois Medical Journal, Chicago

70: 397-492 (Nov.) 1936

Group Hospitalization. C. B. Reed, Chicago.—p. 413.
Chest Roentgenography: New Standards and Improved Technics. D. O. N. Lindberg, Decatur.—p. 415.
Plastic Surgery of Orbit: Notes. M. L. Folk, Chicago.—p. 419.
Pelvic Endometriosis. W. A. Malcolm, Peoria.—p. 424.
Postpartum Hemorrhage in Outpatient Obstetrics. H. Buxbaum and I. C. Udesky, Chicago.—p. 428.
Neuroblastoma, from Standpoint of the Roentgenologist. E. L. Rypins, Bloomington.—p. 431.
Roentgen Therapy of Cellulitis. B. C. Cushway and R. J. Maier, Chicago.—p. 436.
Intrapelvic Protrusion of Acetabulum or Otto's Pelvis. L. M. Hilt, Springfield.—p. 443.
Elliott Machine in Treatment of Prostatitis. L. W. Riba, Chicago.—p. 444.
Use of Obturator in Treatment of Chronic Antrum Infections. G. C. Otrich, Belleville.—p. 449.
Syphilis: Problem in Prenatal Care. Carolyn N. Macdonald, Chicago.—p. 452.
The Radiologist and the Hospital. W. M. Hartman, Macomb.—p. 458.
Occupational Therapy in Mental Hospitals. B. Lemchen, Chicago.—p. 461.
*Incidence and Clinical Significance of Various Types of Diphtheria Bacillus in Illinois. T. C. Grubb and H. J. Shaughnessy, Springfield.—p. 462.
Public Health Problems of Southern Illinois. B. E. Montgomery, Harrisburg.—p. 469.
Pneumothorax for Outpatients. F. M. Meixner, Peoria.—p. 474.
Few Simple Recommendations to the General Practitioner in His Care of Arthritics. R. Pemberton, Philadelphia.—p. 479.
Cross Infection: Its Prevention in a Children's Hospital. M. L. Blatt, Chicago.—p. 483.

Types of Diphtheria Bacillus in Illinois.—Of the 162 strains of Corynebacterium diphtheriae that Grubb and Shaughnessy isolated from 109 cases and carriers, 5.5 per cent were grave, 78 per cent intermediate, 2.9 per cent mild and 4 per cent atypical strains, based on their colonial morphology on chocolate-tellurite agar. Two or more types of organisms were found in approximately 9 per cent of the cases and carriers. Repeated cultures from thirty cases and carriers showed that the original type was recovered at each of two, three, four or nine repeated examinations in 80 per cent of the cases and carriers. A change of type on repeated examination occurred in 20 per cent of the cases or carriers. Correlation of the type of organisms isolated with the clinical severity of the case indicated that the majority of the mild, moderately severe and severe cases were caused by the intermediate strains. Grave strains were not isolated in any of the severe or moderately severe cases. The percentage incidence of the grave, mild and intermediate types of the diphtheria bacillus may vary greatly in different localities. It also seems apparent that, where the prevailing type of diphtheria is mild in character, the incidence of the grave strain is low and it is not associated with severe cases of the disease.

Johns Hopkins Hospital Bulletin, Baltimore

59: 213-306 (Oct.) 1936

Effect of Ventricular Asystole on Respiration. H. M. Thomas Jr., Baltimore.—p. 213.
Salmonella Suipestifer Infection in Myomas of Uterus: Report of Case. L. A. Gray, Baltimore.—p. 231.
*Hemophilic Pseudotumor: Diagnosis, Pathology and Surgical Treatment of Hemophilic Lesions in Smaller Bones and Joints. W. M. Firor and B. Woodhall, Baltimore.—p. 237.
Adenoma of Parathyroid with Renal Insufficiency: Case Report. B. M. Baker Jr. and J. E. Howard, Baltimore.—p. 251.
Lupus Erythematosus Associated with Visceral Vascular Lesions: Series of Autopsied Cases. S. Jarcho, Baltimore.—p. 262.
Steatorrhea with Unusual Intestinal Lesions. S. Jarcho, Baltimore.—p. 275.
Association of Hyperthyroidism and Pernicious Anemia: Note. E. C. Andrus and M. M. Wintrobe, Baltimore.—p. 291.

Hemophilic Pseudotumor.—Firor and Woodhall cite the case of a hemophilic patient with a clotting time of from four to five hours, who presented an extraordinary instance of bone and joint involvement of the right thumb, in whom a roentgen diagnosis of bone sarcoma was given on two separate occasions. However, the lesion represented the end result of hemophilic bleeding into a small articulation and into its adjacent osseous structure, as contrasted with the previously reported instances of similar disorders in large bones and joints. The pathologic sequence of events was similar to that taking place in large bones and joints, but instead of regression and eventual ankylosis in the small bones and joints there may be also progressive destruction and cutaneous rupture. The roentgen diagnosis of hemophilic bone and joint lesions must be qualified in the future by these anatomic differences. Amputation of the pseudotumor was successfully accomplished with the electrocautery, and postoperative healing was essentially normal. This technic, with the supplementary aid of blood transfusions, appears to offer a distinct advance in the surgery of the patient with hemophilia. The favorable influence of cauterization of hemophilic tissue on reduction of the clotting time has been suggested by the observations in the case and is being studied further.

Journal of Clinical Investigation, New York

15: 591-736 (Nov.) 1936

*Heterophile Antibodies in Infectious Mononucleosis and After Injection of Serum. P. Beer, Boston.—p. 591.
Influence of Changes of Abdominal Tension on Pulmonary Function. W. B. Kountz, L. Gottlieb and R. King, St. Louis.—p. 601.
Studies on Circulation in Pregnancy: I. Velocity of Blood Flow and Related Aspects of Circulation in Normal Pregnant Women. M. E. Cohen and K. J. Thomson, Boston.—p. 607.
Blood Lipids of Diabetic Children. I. L. Chaikoff, F. S. Smyth and G. E. Gibbs, Berkeley, Calif.—p. 627.
Hematologic Studies in Hypothyroidism Following Total Thyroidectomy. Beatrice Stern and M. D. Altschule, Boston.—p. 633.
Work of Left Ventricle in Aortic Insufficiency. E. B. Bay, Chicago.—p. 643.
*Peripheral Blood Flow in Surgical Shock: Reduction in Circulation Through Hand Resulting from Pain, Fear, Cold and Asphyxia, with Quantitative Measurements of Volume Flow of Blood in Clinical Cases of Surgical Shock. N. E. Freeman, J. L. Shaw and J. C. Snyder, Boston.—p. 651.
*Glycemic Response to Isoglycogenic Quantities of Protein and Carbohydrate. J. W. Conn and L. H. Newburgh, Ann Arbor, Mich.—p. 665.
Advantage of High Protein Diet in Treatment of Spontaneous Hypoglycemia: Preliminary Report. J. W. Conn, Ann Arbor, Mich.—p. 673.
Metabolism of Human Erythroblasts. W. Kempner, Durham, N. C.—p. 679.
Salt and Water Metabolism of Adrenal Insufficiency and Partial Starvation in Rats. M. I. Rubin and Elizabeth T. Krick, Philadelphia.—p. 685.
Intracellular Fluid Loss in Hemorrhage. J. D. Stewart and G. Margaret Rourke, Boston.—p. 697.
Effect of Dietary Protein on Urea Clearance of Children with Nephrosis. L. E. Farr, New York.—p. 703.
Therapeutic Serum for Pneumococcus Type V (Cooper) Pneumonia. J. G. M. Bullowa and Clare Wilcox, New York.—p. 711.
Observations on Development of High Blood Sedimentation Rate in Rheumatic Carditis. A. F. Coburn and E. M. Kapp, New York.—p. 715.

Heterophile Antibodies in Infectious Mononucleosis.—Beer made a study of the heterophile antibodies in serums from normal persons, from patients with infectious mononucleosis and from individuals who have received injections of serum. He found that in infectious mononucleosis the antigen with which the so-called heterophile antibodies react is found in horse, goat, sheep and beef blood corpuscles. The agglutinins for the blood corpuscles of sheep, horse and goat are markedly increased. In the case of beef blood corpuscles the hemolysins are increased but the agglutinins are not. Each of these kinds of blood corpuscles can absorb almost completely the agglutinins for the blood cells of each of these species. On the other hand, these antibodies are almost nonabsorbable by any antigen for which the corresponding agglutinins are not increased. After injection of serum, the increased agglutinins for many kinds of mammalian blood corpuscles show about the same sequence in their titer as is found in serums of persons without a history of injections of serum. Serum from patients with infectious mononucleosis can be differentiated from normal serums and from those obtained after the injection of serum by absorption of the sheep, horse and goat agglutinins with sheep, beef, horse and goat blood corpuscles or by the resistance of these increased agglutinins to absorption by any of the blood corpuscles the agglutinins for which

are not increased in infectious mononucleosis; namely, rabbit, pig, dog and guinea-pig. The most reliable method besides the absorption of sheep agglutinins by rabbit blood corpuscles (Stuart) is the absorption of horse agglutinins by beef blood corpuscles. By the first method, almost no absorption of the agglutinins is obtained in infectious mononucleosis; by the second, almost complete absorption. In normal serums and in serums after the injection of serum the reverse is true. The differential diagnosis of infectious mononucleosis cannot always be made serologically after the injection of serum.

Peripheral Blood Flow in Surgical Shock.—Freeman and his co-workers stabilized the metabolic demands of the tissues of the hand by maintaining it at a constant temperature. Traumatic stimuli such as cold, pain and fear produced a decrease in the volume flow of blood. With asphyxia, a variable effect was observed. In the hand with vasomotor control intact a decrease in blood flow was observed in six cases, while an increase in circulation was found in eleven cases. The blood flow decreased in regions subject to vasomotor control. It was simultaneously increased in the sympathectomized hand. The systolic blood pressure was raised but slightly, while the diastolic blood pressure more frequently was lowered during the period of asphyxia. In the twelve experiments in which the blood pressure was determined, the maximal rise in systolic pressure was only 10 mm. of mercury. The flow of blood is modified by the metabolic demand of the tissues. Two forces are therefore simultaneously called into play—reflex vasoconstriction and local vasodilatation. The final result depends on which of the two forces is dominant. When the subject was apprehensive, a decreased blood flow was generally observed. In asphyxia not only does the reduced oxygen saturation of the arterial blood necessitate a more rapid circulation but through reflex vasoconstriction the supply of blood at the same time may even be reduced. In the more severe cases of shock the oxygen saturation of the venous blood was below 50 per cent. The inability of the tissues to obtain an adequate supply of blood was indicated by the observations on reactive hyperemia. In the normal subject the circulation increased rapidly after release of the tourniquet. In patients who were in shock a comparable increase was not observed. If the blood volume is reduced, the blood pressure may still be sustained by increasing the peripheral resistance through vasoconstriction. With vasoconstriction, however, the nutrient flow to the tissues becomes reduced. The use of epinephrine or ephedrine in the treatment of surgical shock furnishes an example of this fact. The blood pressure may be increased, but only at the expense of the blood flow. When the lowered blood pressure is the result of a reduced volume of blood in the vascular bed, physiologic treatment necessitates the administration of blood or some blood substitute. The reduced blood flow in the hand, observed in clinical cases of surgical shock, represents a deficiency of circulation that is probably general throughout the body. If the reactions to a crisis are too severe and protracted, vasoconstriction, the very mechanism by which the organism strives to survive, may lead to its destruction.

Glycemic Response to Protein and Carbohydrate.—Conn and Newburgh show that ingested protein causes a very much smaller increase in the blood sugar than results from an equivalent amount of dextrose or carbohydrate food. They believe that the explanation involves a principle that has received but little attention. One is accustomed to measure the capacity of a diabetic patient to dispose of dextrose in terms of the total number of grams of dextrose released from his diet in twenty-four hours. The number of grams of dextrose that just fails to produce glycosuria is taken to be a measure of the largest amount of dextrose that the patient can utilize in a period of twenty-four hours. Since maximal tolerance without glycosuria depends on the rate at which the body is able to remove dextrose from the blood stream by oxidation, deposition as glycogen and transformation to fat, the time element assumes an importance at least equal to that of total yield of dextrose in grams. During the metabolism of protein there occurs a slow yield of dextrose, which approximates 50 per cent of the weight of the ingested protein. Since protein in the diet represents a large source of dextrose, a comparison was made between the blood sugar levels and glycosuria produced by ingestion of equivalent amounts of dextrose derived from protein and from dextrose and carbohydrate foods. The studies were made on fifteen diabetic patients and three normal fourth year medical students. Each subject was maintained aglycosuric for at least two weeks before the study was begun. In the process of protein metabolism, the complex protein molecule is split in the intestinal tract to amino acids. These are absorbed into the blood stream and transported to the liver, where oxidative deamination occurs. Here the glycogenic amino acids are split to form urea and dextrose. That this process is a slow one is shown by the slowly rising blood urea nitrogen. Dextrose is therefore liberated into the blood stream in this process at a slow and even rate over a prolonged period. Under these conditions the diabetic patient is able to utilize a greater total amount of dextrose without glycosuria in a period of eight hours. Therefore the inability of a diabetic subject to dispose of large quantities of dextrose is partially compensated if the dextrose is presented for utilization slowly and evenly. There appears, then, to be some advantage to the patient in this slow liberation of dextrose from protein foods.

Journal of Immunology, Baltimore

31: 257-346 (Oct.) 1936

Refractometric and Chemical Study of Diphtheria Toxin. C. Siebenmann, Toronto.—p. 257.
Study of "Vi" Antigen of Felix and Pitt. Lois Almon and W. D. Stovall, Madison, Wis.—p. 269.
Studies on Mechanism of Immunity in Typhus Fever: Complement Fixation in Typhus Fever. M. Ruiz Castaneda, Boston.—p. 285.
Localization and Concentration of Blood-Borne Antibodies and Colloidal Dye in Areas of Inflammation of Various Ages. J. P. Fox, Chicago. —p. 293.
Study of Antigenic Properties of Certain Normal and Pathologic Lymphoid Deposits in Tissues of Chickens. C. Olson and A. Zeissig, Ithaca, N. Y.—p. 309.
*Blood Grouping in Forensic Medicine. A. O. Gettler and H. E. Kramer, New York.—p. 321.
Studies on Acquired Immunity in Rabbits to Intranasal Infection with Type I Pneumococcus. T. E. Walsh and P. R. Cannon, Chicago.—p. 331.

Blood Grouping in Forensic Medicine.—Gettler and Kramer admonish against the use of blood grouping of partially decomposed (and contaminated) blood stains, since their experiments showed discrepancies. Fresh blood samples of known groups were smeared on cloth, paper and metal implements and allowed to stand for various intervals. The dried blood stains were then again tested. When putrefaction of the blood samples set in before they dried, as many as fourteen out of eighteen wrong groups were obtained. Not only were agglutinogen or agglutinin destroyed during the drying or aging of the blood stains, but in some instances changes occurred which yielded reactions simulating those of some particular agglutinogen.

Journal of Urology, Baltimore

36: 305-468 (Oct.) 1936

Duplication of Kidney and Ureter. G. Y. Char, H. E. Shih and I. C. Wen, Peiping, China.—p. 305.
Congenital Solitary Kidney with Perinephric Abscess: Report of Two Cases. R. L. Davis and A. G. Cowles, San Antonio, Texas.—p. 327.
Present Status of Renal Sympathectomy. T. E. Gibson, San Francisco. —p. 334.
*Vascular Obstruction of Ureter in Children. M. F. Campbell, New York.—p. 366.
Primary Carcinoma of Epididymis. G. A. Williamson Jr. and T. R. Barry, Knoxville, Tenn.—p. 388.
Carcinoma of Epididymis. J. A. May, San Diego, Calif.—p. 391.
*New Operations for Relief of Incontinence in Both Male and Female. O. S. Lowsley, New York.—p. 400.
Histopathologic Study of Female Bladder Neck and Urethra. D. W. MacKenzie and S. Beck, Montreal.—p. 414.
Endoscopic versus Blind Litholapaxy: Report of Accident with Endoscopic Method. A. Pulido, A. De La Peña and E. De La Peña, Madrid, Spain.—p. 443.
Relationship Between Chemical Composition of Renal Calculi and Associated Bacteria. J. T. Priestley and A. E. Osterberg, Rochester, Minn. —p. 447.
Infections of Urinary Tract of Obscure Etiology. E. N. Cook, Rochester, Minn.—p. 460.
Device for Controlling Drainage of Bladder Following Cystotomy. J. E. Tillotson, Woodland, Calif.—p. 466.

Vascular Obstruction of Ureter in Children.—Campbell illustrates the point that the greatest field for preventive medicine in urology lies in the early recognition and treatment of congenital urologic handicaps by reporting eighteen cases of

vascular obstruction of the ureter in children treated surgically. The youngest patient was 14 months old. He finds that vascular compression of the ureter is not uncommon in children. Vessels that produce the obstruction are congenitally anomalous. Hydronephrosis is the important uropathy and is usually infected. Pain in the renal region, pyuria, hematuria, a mass in the loin and, with the advent of infection, fever are the commonest symptoms. Most children with vascular obstruction of the ureter are treated for months for chronic pyelitis. In the absence of infection the renal changes as interpreted by urinalysis regularly cause the diagnosis of chronic interstitial nephritis to be made. Yet the correct diagnosis can usually be made preoperatively by a complete urologic examination. The probable diagnosis is often suggested by excretory urographic observations. Delayed diagnosis and radical surgical treatment are usually reciprocal. Conservative surgical treatment may be expected to save a gratifying number of injured kidneys. Unfortunately the medical profession is as yet insufficiently alert to the high incidence and importance of urologic disease in children. Because of the consequent delay in making the diagnosis, nephrectomy will necessarily be the treatment in fully half of all children with vascular ureteral blockage.

Operations for Relief of Incontinence.—His new operation for impotence, in which Lowsley uses three figure-of-eight ribbon-gut stitches to tighten the bulbocavernosus muscle in the male, has resulted in the inability of many patients to void. One patient, who was both impotent and incontinent, was entirely cured of both conditions by the operation. This accidental result prompted the use of the method in certain cases of incontinence. The patient is placed in the lithotomy position and a 20 French sound is inserted into the urethra. A median or Y shaped incision is made in the perineum and deepened through fat and Colles fascia, exposing the bulbocavernosus muscle, which is then dissected free on its sides. Chromic ribbon gut, studded with an atraumatic needle, is inserted well down on the lateral surface of the muscle. It is then fixed in a similar manner on the opposite side, pulled tightly across the posterior surface, and tied in a square knot. This is repeated at two other points over the bulbocavernosus muscle, resulting in a rather firm plication of the entire muscle. The sound is removed and the fascia and skin are closed with plain catgut and fixation sutures, respectively. It is usually necessary to catheterize the patient every eight hours for two or three days after the operation. In cases of preexisting incontinence, the patient is instructed to void every two or three hours while up and about and to use suprapubic pressure if necessary. The choice of operation for incontinence in the woman depends on the situation. If the urethra is very large and patulous and the patient is entirely incontinent, the ventral surface of the urethra is plicated. If, on the other hand, the patient merely loses a few drops of urine on coughing or other violent muscular activity, encircling the urethra with a piece of ribbon gut and tying it snugly will be all that is necessary to effect a cure. Operations were performed in thirty-five cases of incontinence; six of these were reported previously. The ages of the twenty-nine patients varied from 4 to 66 years. Twenty were women. The operations performed on the women were: suprapubic cystostomy with plastic repair of the vesical orifice, and the roof of the urethra, eight cases; Kelly urethroplasty, four cases, and Lowsley urethroplasty with ribbon gut, eight cases. The operations performed on the nine males were: suprapubic cystostomy and plastic repair of the vesical orifice, six cases, and perineal plication with ribbon gut, three cases. The operative result was favorable in all but four cases. These patients had to be reoperated on, one of them three times.

Kentucky Medical Journal, Bowling Green

34: 485-522 (Nov.) 1936

Hemangioma of Orbit: Case Report. A. L. Bass, Louisville.—p. 499.
Primary Carcinoma of Middle Ear. E. C. Yates, Lexington.—p. 501.
Ascending Paralysis: Report of Case. P. F. Barbour, Louisville.—p. 506.
Cardiac Manifestations of Hyperthyroidism. F. W. Rankin and A. E. Grimes, Lexington.—p. 509.
Evaluation of Reducing Diets. G. Fulton, Louisville.—p. 513.
Mimicry and Insidious Nature of Thyroid Disease: Case Report. B. B. Baughman, Frankfort.—p. 520.

Maine Medical Journal, Portland

27: 213-234 (Nov.) 1936

Radium in Treatment of Malignancy. W. Holt, Portland.—p. 213.
X-Ray Treatment of Malignancy. S. A. Wilson, Lewiston.—p. 214.
Early Recognition and Treatment of Mental Disorders by the General Practitioner. C. J. Hedin, Bangor.—p. 217.
Quo Vadis. R. J. Collins.—p. 223.

Michigan State Medical Society Journal, Lansing

35: 689-768 (Nov.) 1936

Society and Organized Medicine. C. G. Heyd, New York.—p. 689.
Comparative Anatomy and Pathologic Physiology of Adrenal-Sympathetic Complex with Relation to Genesis and Surgical Treatment of Essential Hypertension. G. W. Crile, Cleveland.—p. 694.
Organized Medicine. H. E. Perry, Lansing.—p. 697.
*Allergic Shock. Merle Pierson, Detroit.—p. 699.
"Pus Tubes" Discovered After Opening Abdomen: The Problem, Some Statistics. S. W. Hartwell, Muskegon.—p. 700.
When Shall a Patient Be Discharged from the Tuberculosis Sanatorium? Some Criteria. E. Kupka, Pontiac.—p. 702.
Pellagra. I. W. Brown, Kalamazoo.—p. 707.
Artificial Fever Therapy of Gonorrheal Ophthalmia: Case Report. J. M. Berris, M. K. Newman and L. E. Grant, Detroit.—p. 708.
Von Pirquet Test Technic. D. S. Brachman, Detroit—p. 709.

Allergic Shock.—Pierson warns that the frequency of severe reactions following such usually innocuous procedures as skin testing by the scratch method, the injection of diphtheria toxoid or the taking of certain drugs, as antipyrine, is not generally appreciated. Waldbott has reported a series of such reactions. To these the author adds brief summaries of six such cases seen in private practice. Scratch testing, the injection of diphtheria toxoid, the giving of prescriptions containing such drugs as ipecac, antipyrine, aminopyrine and phenolphthalein or the employment of home remedies such as mustard by mouth or in a plaster should not be undertaken without a knowledge of the family allergic background and the child's previous history. Especially should one be careful in scratch or intradermal tests with such atopens as egg, cottonseed or kapok seed, buckwheat, horse dander, fish glue and mustard.

Minnesota Medicine, St. Paul

19: 633-694 (Oct.) 1936

Age Factor and Intensity or Extent of Gall Tract Disease as Therapeutic Determinants. E. L. Tuohy, Duluth.—p. 633.
Myxedema: Its Nervous and Mental Manifestations. G. N. Ruhberg, St. Paul.—p. 637.
Clinical Importance of Hypothyroidism. D. E. Morehead, Owatonna.—p. 641.
Gastroscopy, Another Method of Examining Stomach. A. Kerkhof, Minneapolis.—p. 647.
Use of Flexible Gastroscope. J. B. Carey, Minneapolis.—p. 652.
Various Drugs Used to Supplement Barbiturates in Production of Obstetric Analgesia and Amnesia. J. J. Swendson, St. Paul.—p. 656.
Diagnostic Problems in Heart Disease in Children and Young Adults. M. J. Shapiro, Minneapolis.—p. 659.
Benign Lymphocytic Meningitis or Acute Aseptic Meningitis. O. P. Thorson, Northfield.—p. 664.

Nebraska State Medical Journal, Lincoln

21: 361-400 (Oct.) 1936

Surgical Aspects of Disease of Gallbladder. W. T. Coughlin, St. Louis.—p. 361.
Clinical Aspects of Cholecystic Disease. P. W. Brown, Rochester, Minn.—p. 367.
Gallbladder: Evaluation of Roentgen Findings in 297 Cases. H. B. Hunt, Omaha.—p. 372.
Review of the Problem of Coagulation and Its Clinical Aspects. E. B. Reed, Lincoln.—p. 376.
Infections of Kidney. P. S. Adams, Omaha.—p. 379.
Aberrant Thyroid Tumors. T. J. Greteman and B. C. Russum, Omaha.—p. 384.
Transient Methemoglobinemia: Case Report. J. K. Miller and C. H. Farrell, Ingleside.—p. 386.
Thyroid "Poisoning" in Children. H. M. Jahr, Omaha.—p. 388.

New England Journal of Medicine, Boston

215: 743-804 (Oct. 22) 1936

Necessity for Use of Splints at Certain Stages in Treatment of Infections of Hand, with Demonstration of Some of the Newer Types. W. E. Browne, Boston.—p. 743.
Diseases and Injuries of Hip Joint. R. N. Hatt, Springfield, Mass.—p. 749.
Some Considerations of Problems of Wound Healing. M. R. Reid, Cincinnati.—p. 753.
Cord Bladder: Its Definition, Treatment and Prognosis When Associated with Spinal Cord Injuries. D. Munro, Boston.—p. 766.
Roentgen Ray Findings in Diaphragmatic Hernia. J. H. Marks, Fall River, Mass.—p. 777.
Undulant Fever: Unusual Case with Necropsy. J. S. Gottlieb, Iowa City.—p. 781.

New York State Journal of Medicine, New York

36: 1587-1698 (Nov. 1) 1936

*Treatment of Sydenham's Chorea with Typhoid Paratyphoid Vaccine. D. Weisman and C. Leslie, New York.—p. 1587.
Endocrine Glands: Problem of Therapeusis in Diabetes. H. R. Geyelin, New York.—p. 1600.
Id.: Ovarian Therapy in Gynecology. C. A. Elden, Rochester.—p. 1607.
Id.: Diagnosis of Tumors In and Around Pituitary Gland. L. M. Davidoff, New York.—p. 1610.
Cancer of Esophagus. W. L. Watson, New York.—p. 1615.
Factors Which Influence Formation of Urinary Calculi: Clinical Application to Prevention of Recurrent Renal Calculi. C. C. Higgins, Cleveland.—p. 1620.
Treatment of Alopecia Areata. H. H. Bauckus, C. F. Siekmann and A. V. Kwak, Buffalo.—p. 1629.
Oxygen Consumption in Organic Psychoses. J. Notkin, Poughkeepsie.—p. 1633.
Surgical Treatment of Acute Cholecystitis. G. J. Heuer, New York.—p. 1643.
Relationship of Mitral Stenosis to Pulmonary Tuberculosis. L. F. Bishop Jr. and A. Babey, New York.—p. 1651.
Increasing Importance of Undulant Fever. J. Kogan, Stamford.—p. 1653.
Vasomotor and Atrophic Rhinitis: Relation to Body Fluids and Sodium Metabolism. S. Kaplan, Brooklyn.—p. 1655.
Between Mental Health and Mental Disease. B. Liber, New York.—p. 1658.

Treatment of Chorea with Vaccine.—Weisman and Leslie treated fifty children who had moderately severe to violent chorea with New York City typhoid paratyphoid vaccine or its equivalent. The initial dose is always 0.05 cc. of undiluted vaccine, intravenously. Tolerance to the vaccine increases with each day's treatment in the large majority of cases. A dose that produces the first day the satisfactory temperature of 105 F. will in all probability produce only the unsatisfactory temperature of 103 F. the next day. Therefore the dosage must be constantly increased in accordance with the patient's previous reactions. The treatment should be given daily and stopped only when all the signs of chorea have disappeared except for the commonly found residual hypotonia. If seven or eight consecutive treatments do not effect a cure, the child should be given a rest for from two to four days before resuming treatment. On the first day of the second series of treatments the same dose should be used as that of the last day of the first series. The child generally loses from 1 to 4 pounds (0.4 to 1.6 Kg.) during the period of treatment. Patients are given a nourishing high caloric and high vitamin diet, and occupational therapy. The treatment should not be undertaken unless it is possible for all the nursing orders to be carried out in a meticulous fashion. The average duration of symptoms from the inception of treatment was 12.2 days for the moderate group, 13.8 days for the severe group and 22.5 days for the violent group. The average length of hospitalization was twenty-six days for the moderate group, 28.4 days for the severe group and forty-two days for the violent group. Children who had an elevated sedimentation rate after their course of treatment were kept in bed until the rate became approximately normal. In the twenty-two cases of clinical rheumatism, the average duration of chorea was 11.7 days, the hospitalization period twenty-six days and the number of treatments eight. On discharge, forty-six of the patients, or 92 per cent, were completely symptom free. Five of the patients have had a total of six recurrences in the follow-up period of from one to three years.

Ohio State Medical Journal, Columbus

32: 1049-1168 (Nov. 1) 1936

Bacterial Asthma. S. E. Dorst and Ethel L. Hopphan, Cincinnati.—p. 1065.
*Motor Derangements of Gastro-Intestinal Tract After Operation. A. G. Sar-Louis, Cleveland.—p. 1071.
Reconstruction of Bile Ducts. F. T. Gallagher, Lakewood.—p. 1074.
Longevity of Physicians. R. G. Paterson, Columbus.—p. 1076.
Dermatitis Seborrhoeica. H. L. Claassen, Cincinnati.—p. 1077.
Cardiac Asthma. S. Hurwitz, Jamestown, N. Y.—p. 1082.
Trichomonas Vaginalis Infestation in Male Genito-Urinary Tract. E. A. Ockuly, Toledo.—p. 1086.
Mild Migratory Myelitis. J. L. Fetterman, Cleveland.—p. 1090.
Use of Ergot in Puerperium. A. Cline, Dayton.—p. 1094.

Postoperative Derangements of the Gastro-Intestinal Tract.—Sar-Louis suggests that the mild form of postoperative gastro-intestinal motor disturbance, "gas pains," is caused by the excessive stimulation of the splanchnic nerve, whereas the severe manifestation, paralytic ileus, represents an advanced stage of the same disturbance which has resulted in a paralytic reaction to excessive stimulation. If gas pains are the result of increased peristalsis from vagus stimulation, drugs that augment intestinal movements are contraindicated. They are of value, however, in the severe forms of motor disturbances due to vagus paralysis. Prophylactic treatment consists of avoiding preoperative purges, careful operative technic and the postoperative avoidance of liquids by mouth. Prevention of dehydration and loss of inorganic salts, as well as restoration of the acid-alkali balance, are accomplished by suitable solutions administered subcutaneously and intravenously. Drugs that have been shown to stimulate the small intestine include hypertonic saline solution administered intravenously, dimethyl carbamic ester of hydroxy phenyl-trimethyl ammonium methyl sulfite, the physostigmine derivative, oil of tansy, acetylcholine and morphine.

Radiology, Syracuse, N. Y.

27: 391-520 (Oct.) 1936

Hepatosplenography with Stabilized Thorium Dioxide Sol: Follow-Up Study of 200 Patients Examined over a Period of Five Years. W. M. Yater, L. S. Otell and H. H. Hussey, Washington, D. C.—p. 391.
Radiation Therapy of Bone Tumors. O. N. Meland, Los Angeles.—p. 410.
*Gliomas Roentgenologically Considered. C. W. Schwartz, New York.—p. 419.
Study of Effect of Skull Rotation on Roentgenologic Measurements of Pineal Gland. W. W. Fray, Rochester, N. Y.—p. 433.
Problems in Radiation Therapy. J. L. Weatherwax, Philadelphia.—p. 442.
Posterior Dislocation of Hip: Roentgenographic Study in Anterior Oblique View. C. K. Hsieh, Peiping, China.—p. 450.
Ionization of Air by Lenard Rays. L. S. Taylor, Washington, D. C.—p. 456.
Effect on Roentgen Rays and Hydrogen Peroxide on Tissue Lipase. Helen Quincy Woodard, New York.—p. 463.
Improved Method for Treatment of Cancer Statistics. L. G. Jacobs, Minneapolis.—p. 468.
*Air in Hepatic Ducts: X-Ray Sign of Biliary Fistula. R. A. Powers, Palo Alto, Calif.—p. 474.
Porphyrinemia and Porphyrinuria: Warning Regarding Their Importance in Roentgen Therapy. I. S. Trostler, Chicago.—p. 479.
What Is the Best Way in Which to Treat Breast Cancer? G. Perry, Evanston, Ill.—p. 481.
*Calcified Mesenteric Lymph Nodes: Their Incidence and Significance in Routine Roentgen Examination of Gastro-Intestinal Tract. S. Schechter, New York.—p. 485.

Roentgen Consideration of Gliomas.—Schwartz analyzes the operatively proved gliomas that had preoperative roentgen examinations at the Neurological Institute during the last ten years. The recognition of a glioblastoma multiforme depends on a short malignant history and evidences of intracranial disease. Untreated these tumors result fatally within about a year, but with the application of from 2,500 to 4,000 roentgens in divided doses the survival time may be doubled, with an occasional remission of symptoms. The astrocytoma constitutes about 30 per cent of the glioma group. Its location can be estimated closely from the study of stereoscopic films. The roentgen diagnosis of an astrocytoma in a child depends on a history of a few months of gradually progressive symptoms, signs of increased intracranial pressure, and little or no atrophy of the sella turcica. In the adult there is a history of many months, even years, of gradually progressing symptoms with perhaps remissions, signs of increased intracranial pressure, a shift of the pineal body, atrophy of the sella turcica, and string-like or punctate deposits of calcium usually situated in the temporal lobe or in the temporofrontoparietal region. Postoperative empirical irradiation is to be advised. Medulloblastoma is of rapid growth and has the tendency to spread widely through the leptomeninx. The only roentgen evidence of its presence is usually increased intracranial pressure. The medulloblastoma will have a short malignant history and is sensitive to x-rays. The astroblastoma is found almost without exception in the cerebrum of adults and grows rapidly. Cystic degeneration is common and it calcifies frequently. X-rays are of about the same efficiency as in the treatment of a glioblastoma multiforme. The oligodendroglioma is found with but few exceptions in the cerebral hemispheres of adults of from 40 to 50 years of age. The tumors are solid, not apt to become cystic or degenerate, and fairly well demarcated from the surrounding brain tissue. Calcification is usually found to be perivascular, streaky or somewhat flocculent. Roentgen therapy

will slow the growth in case of incomplete surgical removal or inaccessibility. The spongioblastoma polare is slow growing and situated in the cerebral axis and brain stem. It is the most common form of glioma found involving the optic chiasm and is frequently associated with von Recklinghausen's disease. If calcification is seen in a position close to the clivus and obviously in the pons with or without evidence of increased intracranial pressure, if the patient is young and the history long and slowly progressive, a diagnosis of spongioblastoma would be highly probable. Roentgen therapy is often the only form of treatment, as the growths are surgically inaccessible. The ependymomas occur as ependymoma and ependymoblastoma. The ependymomas often occur in children and frequently calcify sufficiently to cast a shadow in the roentgenogram. Calcification, if present, will usually be found as a small flocculent amorphous deposit near the midline in the posterior fossa or possibly near the position occupied by the lateral ventricles. Operation should be resorted to, followed by intensive irradiation to forestall a recurrence. The roentgen diagnosis of a pineal tumor is usually difficult without air studies. Roentgen therapy or surgical intervention has little to offer. Papillomas of the choroid plexus are rarely encountered in patients more than 10 years of age and their site of election is the fourth ventricle. The diagnosis is aided by air studies. The shadow cast by calcification in a large glomus of the choroid plexus should not be confused with a papilloma. In a large percentage of benign choroidal calcifications they are bilateral, but papillomas have been found simultaneously in the two lateral ventricles. The tumors are vascular and irradiation has been known to reduce the vascularity and the rate of growth.

Air in Hepatic Ducts as Roentgen Sign of Biliary Fistula.—Powers believes that air in the bile ducts must be a common observation, as it was present in three of the four cases observed by him. Air shadows are usually tubular or branched, and follow the general direction of the common duct. Air may surround a calculus in the gallbladder and cause a crescentic shadow. On two occasions he has observed tubular transparent shadows arising near the spine and extending downward from left to right. He can find no adequate explanation of these pseudo air shadows. They may be due to fat in the ligamentum teres hepatis. One of the patients was operated on for a perforating duodenal ulcer and no fistula was present. Air or barium rarely enters the hepatic ducts except through a biliary fistula. Not infrequently one sees the opening of the ampulla outlined bluntly, but barium is never seen to enter the duct. In case of a recently passed gallstone or malignant infiltration, the ampulla may be gaping open. He has found no previous mention of a solitary faceted gallbladder calculus being the basis for a diagnosis of biliary fistula. Such a diagnosis appears almost fool proof, but it is possible that one stone might have a high calcium content and the other be almost pure cholesterol. In the case that he describes there was a minimum of calcium in the missing stone. In cases of intestinal obstruction, careful search should always be made for air shadows.

Calcified Mesenteric Lymph Nodes.—Schechter found calcified mesenteric lymph nodes in 1.7 per cent of 2,119 routine gastro-intestinal roentgen surveys. Comparative incidence observations are 1.9 per cent in 1,000 consecutive cases of lumbosacral spine roentgenograms and 2.8 per cent in 1,000 consecutive roentgen examinations of the urinary tract. In 60 per cent of the cases the site of the calcified nodes was the right lower quadrant of the abdomen. An increased percentage incidence of both local and general symptoms is noted, but a relation to calcified lymph nodes is not apparent. In 80 per cent of the cases in the series, abdominal pain and tenderness was absent or these symptoms were localized at sites other than that of the calcified nodes. Of this number, 28.5 per cent had no abdominal pain or tenderness. Abdominal pain and tenderness, which are considered prominent symptoms in the clinical evidence of calcified mesenteric lymph nodes, do not appear to bear this symptom relationship when these nodes are found in routine roentgen studies of the gastro-intestinal tract. The relationship to the general symptoms of nausea and vomiting is also indefinite.

Surgery, Gynecology and Obstetrics, Chicago

63: 561-688 (Nov.) 1936

Intrinsic Factors Altering Absorption of Catgut. C. J. Kraissl, New York.—p. 561.
*Obstructive Jaundice: Differential Diagnosis by Roentgen Ray. F. S. Foote and J. L. Carr, San Francisco.—p. 570.
*Duration of Voluntary Apnea in Thyrotoxicosis: Index of Stability and Criterion of Operative Risk. W. Bartlett Jr., St. Louis.—p. 576.
Acute Pelvic Appendicitis. H. Brunn, San Francisco.—p. 583.
Intervals Between Pregnancies of Mothers Giving Birth to Congenitally Malformed Children: Study of 531 Families. D. P. Murphy, Philadelphia.—p. 593.
Effects of Calculous Biliary Obstruction on Structure and Functions of Liver. A. M. Snell, Rochester, Minn.—p. 596.
Therapeutic Study of Bromsalizol in Chronic Arthritis. D. I. Macht and R. W. B. Mayo, Baltimore.—p. 603.
Consideration of Nutritional Status of Surgical Patient. J. A. Wolfer, Chicago.—p. 697.
Rôle of Thoracoscopy in Diagnosis and Management of Lung Tumors. R. C. Matson, Portland, Ore.—p. 617.
Surgical Treatment of Deep Seated Nonresectable Ulcers of Duodenum: New Plastic Method of Approach. M. E. Steinberg, Portland, Ore.—p. 625.
Use of Fascia Lata in Repair of Hernia. G. V. Foster, Pittsburgh.—p. 632.
Cow Horn Fixation in Bone Surgery: Its Use in Forty Cases. W. B. Carrell, Dallas, Texas.—p. 636.
*Production of Vaginal Acidity by Estrin: Its Importance in Treatment of Gonorrheal Vaginitis. R. M. Lewis and L. Weinstein, New Haven, Conn.—p. 640.
Preparation of Safe Intravenous Solutions. C. W. Walter, Boston.—p. 643.
Diffuse Cavernous Angioma of Leg. F. C. Kidner, Detroit.—p. 647.
Simple Technic for Cure of Hypospadias. Gatewood, Chicago.—p. 655.
Surgical Correction of Flexion Deformity of Knees Due to Spastic Paralysis. M. Cleveland and D. M. Bosworth, New York.—p. 659.
Femoral Hernia. A. R. Dickson, Battle Creek, Mich.—p. 665.
Intussusception in Adults: Two Additional Cases. F. Christopher, Evanston, Ill.—p. 670.
Generalized Peritonitis Secondary to Rupture of Appendix, with Especial Reference to Serum Therapy. J. T. Priestley and C. J. McCormack, Rochester, Minn.—p. 675.

Obstructive Jaundice.—A method is presented which, Foote and Carr believe, will reduce the percentage error in differentiating operative from nonoperative cases. It is a modification of the Graham-Cole roentgen technic and is dependent on the fact that, even though the common bile duct has been completely blocked, dye will still be excreted by the liver and concentrated in the gallbladder, where it will remain visible by x-rays for several days. Dye (iodeikon, intravenously in divided doses, from 250 to 750 mg., with dextrose) was given to seventeen patients suffering from well developed jaundice, twelve of whom were blocked completely. The dye held in the gallbladder over a long period is often unevenly distributed or gathered in pools, giving a false appearance of stones. It also may settle to the tip of the fundus, giving a dense, semilunar shadow if the patient has remained quietly in bed. On the other hand, the dye given to patients with jaundice due to intrahepatic obstruction fails to visualize the biliary system in a single case after forty-eight hours. Although normal shadows of the gallbladder may be seen at twenty hours, the gallbladder empties at forty-eight hours and no shadow is cast. Two of three such patients with clinical pictures of common duct stone proved at operation to have catarrhal jaundice. The gallbladder and bile ducts were normal. The diagnosis without the x-rays is uncertain in many cases of jaundice in spite of the fact that full hospital and laboratory facilities are at hand but may be made by this method in some instances. With their present meager experience with this method, the authors feel that it offers an effective means of differentiating intrahepatic from extrahepatic biliary obstruction in most cases. When such tests give positive evidence, operation is not advised.

Duration of Voluntary Apnea in Thyrotoxicosis.—Bartlett confirms the previous observation that in thyrotoxicosis there occur (1) a decrease in the duration of the apneic interval in inspiratory and expiratory phases and (2) a characteristic alteration of the relationship between their numerical values and a return toward normal values as the patient improves and achieves sufficient stability to withstand operation. The test is performed under basal conditions. The duration of the apneic interval after expiration is usually made first. A maximal inspiration is taken, followed immediately by a maximal expiration and the nares are lightly compressed by the examiner's fingers; the duration is counted with the watch from

the start of the expiration until the breaking point is reached. After a rest period of at least five minutes the inspiratory phase is determined; a maximal inspiration is taken, followed at once by a maximal expiration, and the ensuing maximal inspiration is held, with compression of the nares as before. The duration is measured from the start of the final inspiration, since some persons fill their lungs more rapidly than others. The duration of the inspiratory phase is then placed over the duration of the expiratory phase and the fraction thus obtained expresses the duration of voluntary apnea. The arithmetical value of the fraction, that is, the index of stability, tends to approach a value of 1. Clinical improvement is accompanied by a reversion toward the normal range, from 1.8 to 2. Like many other methods of investigation of the deranged physiology of thyrotoxicosis, the estimation of duration of voluntary apnea is not necessary to the safe handling of only mildly hyperthyroid patients. But it is invaluable in making the decision between subtotal thyroidectomy and two stage operation for the severely thyrotoxic individual. After becoming thoroughly familiar with the use of the test, one need not expect to find a close, constant parallel between changes in the duration of voluntary apnea, pulse rate, basal metabolism, and the like, in the progress of a case. There is a general correlation in these and other criteria as the patient grows better or worse, but there is so obviously a selective mechanism at work in thyrotoxicosis, in that the chief expression of the disease varies among different organ systems from case to case, that the patient is rare who improves in all respects at the same rate. The various clinical criteria in thyrotoxicosis, to which the breath holding ability test is an addition, probably measure quite dissimilar facets of this many sided diseases.

Production of Vaginal Acidity by Estrogen.—In view of the well known fact that, in vitro, the gonococci grow best in an alkaline medium and usually do not survive if it is rendered acid below a hydrogen ion concentration of 6, Lewis and Weinstein suggest that a change of reaction, to acid, of the vaginal secretions of children by treatment with estrogen similar to that found in monkeys might easily account for the destruction of the gonococci. In seventeen normal children, the youngest of whom was 4 months and the oldest 10 years, they found the vaginal secretions to have an average hydrogen ion concentration of 7.2. In ten children with gonococcic vaginitis, measurements of the vaginal acidity gave an average hydrogen ion concentration very near the neutral point. Eleven consecutive cases of vaginitis in which Neisseria gonorrhoeae was still present in smears and in which the vagina was found to have a hydrogen ion concentration of 6.2 or more were treated by inserting gelatin capsules containing 75 rat units of amniotin into the vagina at night, just before retiring. As a rule approximately two weeks of such treatment will result in a vaginal acidity of hydrogen ion concentration 6 or below. In no case (twenty-four in all) in which the vaginal secretions were found to have a hydrogen ion concentration of 6 or below for any length of time could the gonococci be found in the smear. The acidity of the vaginal secretions is in all likelihood the important factor concerned in doing away with gonococcic infections, when children so infected are treated with estrogen. Doederlein's organism was present in only a few of the children examined and its presence or absence could not be correlated with the acidity or alkalinity of the vaginal tract.

Tennessee State Medical Assn. Journal, Nashville

29: 377-416 (Oct.) 1936

Poliomyelitis. W. L. Poole, Johnson City.—p. 377.
Ocular Tuberculosis. E. C. Ellett, Memphis.—p. 382.
Evaluation of Radiation in Certain Diseases of Female Pelvis. W. D. Anderson and W. S. Lawrence, Memphis.—p. 388.
Local Anesthesia in Reduction of Fractures. E. D. Newell, Chattanooga.—p. 394.
*Interfering Agent in Human Blood Grouping. C. G. Ransom, Nashville.—p. 398.

Interfering Agent in Human Blood Grouping.—Ransom refers to an enzymatic agent that is often encountered but is frequently overlooked by the routine methods of blood grouping. The iso-agglutinogens being dominant mendelian characteristics and the finding of an interfering agent in several specimens of blood, which changed the groups, prompted the investigation. The term iso-agglutinin is defined as being a substance in blood serum of an individual which has the power to agglutinate (or clump) the red blood cells of another individual belonging to the same species. While conducting a research problem with special regard to the blood groups, he encountered a most unusual phenomenon among six specimens of blood, all from different individuals of the same family and belonging to either group AB or B with parents of groups A and O. Stepchildren and illegitimacy were ruled out. Second specimens did not reveal the peculiar reaction but did disclose the bloods to belong to the groups that were possible for their parents to produce, such as A and O. Two of the first samples were preserved in the refrigerator, making it possible to correlate the first specimens with the second. Case 1 was found to be agglutinated by the standard serum A and failed to be agglutinated by the standard serum B; therefore, results of this test would place the person in group B. The second examination proved the blood to belong to group O. Case 2 was found to be agglutinated by the standard A and B serums. This person was considered to belong to group AB. These reactions took place at room temperature, although they could be greatly accelerated at lower temperatures. Cultures of the supernatant fluid from the first specimens of both cases disclosed a gram-negative bacillus which corresponds very closely to the description of Thomsen's B. He stated that this organism was an accentuating factor and would allow what he called an agglutinin (L) to act. The observations are not in entire agreement with those of Friedenreich, as only half of the bloods proved to be in false group AB and half in group B. Hence it may be concluded that the B typing serum was weak in agglutinin T, or L, as Thomsen named it. Although the serums possessed a strong titer for agglutinins A and B, it is not correct in the light of these experiments to consider this phenomenon as a panagglutination in all serums. Neither can it rightfully be called the normal cold-agglutinin, but it does seem plausible that these cells may have been sensitized by the enzyme, thereby allowing the cells to be agglutinated by the cold-agglutinin at a higher temperature. In order to overcome this particular source of error with the interfering agent, the blood must be examined within twelve hours after withdrawal if collected by the suspension method. The second method of detecting this phenomenon is by withdrawing the supernatant fluid from the suspicious cells and placing it in a refrigerator for twelve hours or longer with known O cells. If the cells agglutinate in any serum, the agent is acting. The third and best method is to test the cells in doubt with AB serum and, if agglutination takes place, the agent is acting and allowing the third agglutinin (L) to act on the red blood cells.

Wisconsin Medical Journal, Madison

35: 853-936 (Nov.) 1936

Diagnosis and Treatment of Trichomonas Vaginalis. R. M. Kurten, Racine.—p. 869.
Pityriasis Rosea. S. M. Markson and H. L. Miller, Milwaukee.—p. 875.
Treatment of Menopause at Milwaukee County Dispensary. W. Houghton and Mary Neville, Milwaukee.—p. 879.
Significance of Essential Hypertension in General Practice. F. D. Murphy, Milwaukee.—p. 881.
Conditions Causing Constipation: Mechanisms of Production and Methods of Management. J. A. Bargen, Rochester, Minn.—p. 887.
*Jaundice in Arthritis: Report of Two Cases. M. C. Borman, Milwaukee.—p. 890.
Basis of Psychopathology. S. A. McCormick, Madison.—p. 891.
Estimation of Blood Platelets as an Aid in Diagnosis. O. O. Meyer, Madison.—p. 894.
Complete Congenital Absence of Vagina and Uterus. D. N. Walters and C. L. Qualls, Fond du Lac.—p. 895.

Jaundice in Arthritis.—In the last two years Borman has seen two patients suffering from a diffuse myofibrositis and periarthritis, whose pain was appreciably diminished with the development of jaundice. Neither patient had used cinchophen prior to the development of jaundice. The reason for the analgesia and the mechanism of its action is not clear. Although an intense degree of jaundice was present in both patients and the degree of rheumatic pain from which they suffered was graded two plus on a basis of four, the analgesic action of jaundice, although definite, was incomplete. It continued, however, during the time the patients have been under observation.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

59: 277-394 (Oct.) 1936

*Clinical Picture of Minor Cord Lesions in Association with Injuries of Cervical Spine, with Especial Reference to Diagnostic and Localizing Value of Tendon Reflexes of Arm (Inversion of Radial Reflex). F. M. R. Walshe and Jean Ross.—p. 277.

*Tumors Involving Ventral Aspect of Pons and Medulla, Including Two Chordomas. L. D. Stevenson and E. D. Friedman.—p. 291.

Effects of Diencephalic Stimulation on Urinary Bladder Tonus. J. Beattie and A. S. Kerr.—p. 302.

Further Observations on Grasping Movements and Reflex Tonic Grasping. F. M. R. Walshe and J. H. Hunt.—p. 315.

Effect of Prolonged Occlusion of External Jugular Veins on Cerebrospinal Fluid and Torcular Venous Pressures of Dog. T. H. B. Bedford.—p. 324.

Primary Tumors of Root of Fifth Cranial Nerve: Their Distinction from Tumors of Gasserian Ganglion. H. Krayenbühl.—p. 337.

Neuromyelitis Optica. B. H. Balser.—p. 353.

Significance of Individual Differences in Berger Rhythm. F. Lemere.—p. 366.

Pathology of Senile Chorea (Nonhereditary). N. S. Alcock.—p. 376.

Minor Cord Lesions and Injuries of Cervical Spine.—Walshe and Ross deal with injuries in which the spinal cord does sustain some relatively slight damage, either a momentary nipping when there is displacement of cervical vertebrae in relation to one another, or a momentary stretching over the posterior aspect of the vertebral bodies when the head is forcibly flexed, as in a fall in which the vertex strikes the ground first. Of the six cases which form the material of the present study, only one had been recognized, though more than one had been submitted to neurologic examination. The diagnoses actually made included progressive muscular atrophy, amyotrophic lateral sclerosis, primary lateral sclerosis and arthritis of the shoulder. It is the history of injury which is in a measure responsible for directing attention away from the cervical spine and cord, since it is the head which first receives the violence and not the neck. The common story given by the patients is that, when the resumption of activity begins after recovery from the immediate effects (e. g., concussion) of the injury, they find the arms alone or both arms and legs weak. This weakness may persist unchanged, may gradually and partially clear up, or may even slowly increase with the passage of time. In the authors' experience it cannot be assumed that the relatively moderate degree of the initial disability means that complete recovery may be looked for within a short or measurable period. The appearance of muscular wasting in the upper limbs is not invariable, and when it occurs it may not be noticed by the patient for some weeks. The essential elements in the clinical picture are: (1) limitation of movement of the head and neck, with pain and stiffness on movement; (2) some general weakness of the upper limbs, sometimes associated with special weakness and wasting of muscles supplied by the fifth and sixth cervical segments; (3) characteristic differential changes in the tendon jerks in the arms, usually including inversion of the radial reflex; (4) slight hypertonus of the extensor group in the legs, with increased knee and ankle jerks, and in some cases ankle clonus and extensor plantar responses; (5) an absence of sensory loss; (6) absence of defects of sphincter control, and (7) slow and imperfect recovery.

Tumors in Ventral Aspect of Pons and Medulla.—Stevenson and Friedman present two cases of tumor at the base of the brain and two cases of chordoma, a tumor derived from the remains of the notochord. Chordomas may grow from either end of the remains of the notochord. The growths are usually not malignant but, if removed surgically, tend to recur. Occasionally they give rise to metastases in other parts of the body. One cannot establish a definite syndrome for tumors located in this region, but the authors believe now that signs of involvement of one or both hypoglossal nerves, or others of the lower cranial nerves, might help to place the tumor in front of the pons and medulla rather than in the fourth ventricle. Moreover, these tumors differ in several important respects from tumors invading the pons (e. g., glioma), from acoustic neuromas and from tumors of the fourth ventricle. Tumors of the fourth ventricle itself usually give rise to the von Bruns sign (sudden vertigo with change in posture), signs of internal hydrocephalus with perhaps evidence of distant pressure on the chiasm owing to herniation of the floor of the third ventricle. These cases, as a rule, are characterized by the absence of cranial nerve phenomena. Many of the tumors at the base are latent and symptomless, but they may involve any of the lower cranial nerves from the eighth to the twelfth. They are frequently accompanied by disturbances in respiration and heart rate and by the presence of intermittent glycosuria. Some of the more characteristic signs and symptoms include occipital headache, attitudinizing of the head, cerebellar ataxia and an intermittent course. Syphilitic meningitis at the base might enter into the differential diagnosis, but it is more apt to give rise to the picture of an angle lesion. Vascular lesions of the pons and medulla are apt to give rise to more definite and clearly defined syndromes, involving the distribution of the superior cerebellar artery, the posterior inferior cerebellar artery, the vertebral artery or the basilar artery with its branches.

British Journal of Physical Medicine, London

11: 101-118 (Oct.) 1936

*Physical Deformities Commonly Regarded as Due to Rickets. E. Pritchard.—p. 102.

Treatment of Erysipelas with Ultraviolet Light. N. E. Titus, New York.—p. 104.

Summer Sunlight Deficiency. Mary E. Ormsby.—p. 107.

Low Intensity Short Wave. E. Weissenberg.—p. 108.

Problems of Ionification: Theories and Work by Medical Men in Soviet Russia. E. Stolkind.—p. 109.

Physical Deformities and Rickets.—Pritchard believes that, according to the more modern acceptation of the term "rickets," this appellation should properly be confined to the group of symptoms which are directly attributable to a deficiency of vitamin D and are due to a failure in the fixation of calcium in growing bone. Not all bony deformities, however, are the result of deficiency of vitamin D. Many are of a congenital nature, and others are due to the mechanical effects of laxity of ligaments and muscular weakness. Many of the common deformities, such as flatfoot, knock knee, bandy legs, lordosis, kyphosis and pigeon chest, the sort of deformities which most frequently come under the notice of the pediatric physician and which are generally described as "rickety deformities," are clearly not due to this cause. Flatfoot is generally due to laxity of ligaments, muscular atony and an excessive bodily weight due to overfeeding, imposed on the arches before they are in a condition to withstand the strain. Knock knee is due to very much the same causes, with the additional factor of straddling of the legs, owing to difficulties which the child experiences in maintaining equilibrium when it begins to walk. Bandy legs generally represent the persistence of the intra-uterine tibial curvature, which is caused by the crossing of the legs on the abdomen in a cramped position. Mentally defective, degenerate and otherwise debilitated infants remain inactive, and the legs continue in the uterine position, and consequently the curves are not obliterated and when the child begins to walk there is a tendency for the tibial curves to be exaggerated. Most varieties of spinal curvature are due to muscular atony and laxity of the ligaments, with resulting faults in posture. Pigeon chest is seldom traceable to a true rickety origin; although due to mechanical causes, there is nearly always some congenital or familial element in the pathogenesis. Faulty methods of feeding, with various deficiencies and excesses, are generally discoverable. Wrong methods of breathing, excessive coughing and respiratory obstruction may play a part in the pathogenesis. The so-called rickety deformities, like many others of the reputed symptoms and signs of rickets, are really due to one or the other of the many combinations of deficiencies and excesses that may occur in any maladjusted dietary, and the cure for them is not the specific treatment for rickets but the correction of the primary cause.

British Medical Journal, London

2: 793-850 (Oct. 24) 1936

The Background to Harvey. W. Langdon-Brown.—p. 793.

Clinical Experiences with New Alkaloid, Ergometrine. C. Moir.—p. 799.

The Care of the Sea-Sick. J. Hill.—p. 802.

Glaucoma and Sepsis. R. Kerry.—p. 808.

The Sedimentometer: Photographic Apparatus for Automatic Recording of Blood Sedimentation Rate. T. Lee.—p. 809.

Edinburgh Medical Journal

43: 657-716 (Nov.) 1936

Clinical Recollections and Reflections: VII. Retinal Circulation in Cardiovascular Renal Disease. A. M. Ramsay.—p. 657.
Normal Variations in Cutaneous Temperature of Extremities. P. W. Ingram.—p. 672.
Sex Hormone Therapy in Gynecology. R. W. Johnstone.—p. 680.
The Morbid Miner. D. E. Dickson.—p. 696.

Indian Medical Gazette, Calcutta

71: 565-628 (Oct.) 1936

*Biologic Method for Control of Dracontiasis. V. N. Moorthy and W. C. Sweet.—p. 565.
Guinea-Worm Infection of Cyclops in Nature. V. N. Moorthy and W. C. Sweet.—p. 568.
Pellagra in Vizagapatam. G. Dinker Rau and T. K. Raman.—p. 570.
Typhus Fever in Burma and Their Distribution: Note on Cases. G. C. Maitra and P. N. Sen Gupta.—p. 572.
Changes in Certain Chemical Constituents of Blood in Kala-Azar. K. V. Krishnan, N. G. Pai and P. N. Bose.—p. 574.
Comparative Study of Modified Kline Test with Wassermann and Kahn Tests on 946 Blood Samples. N. Seshadrinathan and R. V. Rajam.—p. 577.
Drop Pipet for Use in Kahn Test. N. Seshadrinathan and B. Timothy.—p. 579.
Proximate Analysis of Native Beer Pachwai of Aboriginal Tribes in Bengal. S. Neogi.—p. 580.
Etiology of Primary Glaucoma. B. G. S. Acharya and J. N. Jaswal.—p. 582.
Observations on Intra-Ocular Pressure in Cats. J. N. Jaswal.—p. 583.
Sedimentation of Red Blood Cells in Glaucoma and Other Ocular Diseases. J. N. Jaswal.—p. 584.

Biologic Method for Control of Dracontiasis.—Moorthy and Sweet point out that the following six species of small fish were found to be of use in guinea-worm control: Barbus (Puntius) puckelli, Barbus (Puntius) ticto, Lepidocephalocythys thermalis, Rasbora doniconius, Barbus sophore and Barbus chola. To these fish have since been added a species of Gambusia, imported from Italy, which has also been found useful. All these species of fish feed on such copepods as cyclops, daphnia, cypris and diaptomus, under both laboratory and field conditions, although Barbus puckelli and Barbus ticto are the most active in this respect. Any species of fish to be useful in dracontiasis control should feed on and digest copepods, especially cyclops, should be a prolific breeder and should have its breeding season just before or coincident with the guinea-worm transmission season. Since 1934 fish have been introduced into step-wells in thirty-five infected villages, with the result that guinea-worm disease has disappeared in six and been markedly reduced in four. In certain of these villages the fish have not survived. Investigation has shown that this may be due to the bailing out of water to remove silt, to the drying up of the well in summer, to unexpected chemical treatment or to the catching of the fish for eating when the water is low. It is also probably true that certain waters because of their chemical or biologic peculiarities will not support these fish. The abolition of step-wells is the only permanent and fool-proof measure for the control of this disease.

Journal of Laryngology and Otology, London

51: 683-754 (Nov.) 1936

Pathologic Changes in Ear in Late Congenital Syphilis. O. Mayer and J. S. Fraser.—p. 683.

Journal of Tropical Medicine and Hygiene, London

39: 233-244 (Oct. 15) 1936

Simple Method of Rearing and Maintaining Anopheles Maculipennis Throughout the Year in the Laboratory. P. G. Shute.—p. 233.
*Experimental Transmission to Man of Treponema Pertenue by Fly Musca Sorbens, Wd. W. A. Lamborn.—p. 235.

Experimental Transmission to Man of Treponema Pertenue.—Lamborn outlines the habits of the hematophagous group of Muscid flies, as typified by Musca sorbens, the commonest representative in East Africa, which suggest the likelihood of their especial responsibility for the dissemination of pathogenic organisms present in skin lesions. A study of the precise manner in which such infections could be spread by the fly was carried out, with regard to Bacillus leprae, in the first place. It was then ascertained that, after regurgitation has taken place from an infecting meal and the vomit drop has been withdrawn, these organisms may be laid down on whatever food material to which the insect may happen to apply its proboscis shortly afterward. Bacillus leprae may be so deposited up to twenty-four hours from the infecting meal. It was further ascertained, as a result of the observation, that a trypanosome, Trypanosoma rhodesiense, also may be so deposited by the fly, and in viable condition up to half an hour. It has been proved conclusively that this fly must play a very definite part in the transmission of yaws as a result of the habit. The chance fall either of the excreta or of the vomit drop in the right situation plays a minor part in producing such infection compared with this definite purposeful act on the part of the fly. Full data on the transmission of the causative organism from one human subject to another by the fly are given.

Lancet, London

2: 893-960 (Oct. 17) 1936

Anorexia Nervosa. J. A. Ryle.—p. 893.
*Storage of Cystine in Reticulo-Endothelial System and Its Association with Chronic Nephritis and Renal Rickets. Dorothy S. Russell and H. J. Barrie.—p. 899.
Radiography of Hand in Chronic Rheumatic Diseases. G. R. P. Aldred-Brown and G. D. Steven.—p. 905.
Test for Mobility of Mediastinum: Unilateral Plugging of a Main Bronchus. J. Holló and L. Laub.—p. 908.
Aortic Triangle: Radiologic Landmark in Left (or II) Oblique Position. J. Parkinson and D. E. Bedford.—p. 909.
Clinical Immunity. W. Willcox.—p. 911.

Storage of Cystine.—Russell and Barrie cite three cases in which advanced chronic interstitial nephritis was associated with a disturbance of cystine metabolism. In two instances cystine was stored in the reticulo-endothelial system, the deposits being visible to the naked eye as opaque ochreous flecks and streaks. In the third, cystinuria and stone formation were recognized in early childhood; no cystine was found in the tissues at necropsy. Only four cases are on record with a similar storage in the tissues. In none of the six cases in which storage of cystine in the tissues has been found at necropsy had cystinuria been established clinically before death. The association of underdevelopment and rickets with a disturbance of cystine metabolism in Lignac's three cases and in one of the authors' cases raises the question of the nature of the relationship of these conditions. A disorder in which the metabolism of this substance is impaired might well be accompanied by a retardation of growth. Yet underdevelopment is not a recognized feature of cystinuric subjects, being inconstant in cystinuric children. Likewise the association of rickets with cystinuria is shown by the same cases to be inconstant. Yet the identification of a disturbance of cystine metabolism combined with rickets in Lignac's cases and in one of the present cases suggests that the association cannot be dismissed as coincidental. Lignac's experience suggests that cystine storage would be found much more often in rickets, or at any rate renal rickets, if the possibility of its presence were kept in mind and steps taken for its detection. There are clinical considerations which suggest that the cystine diathesis may not be excessively rare in renal rickets as a class. The occasional record of glycosuria in renal rickets recalls the report of pentosuria, and later slight glycosuria in one of Lignac's cases and of glycosuria in the authors' case. The familial occurrence not only of cystinuria but of renal rickets and the not uncommon record of calculi of unspecified chemical composition in the urinary tract in cases of renal rickets and infantilism again suggest the linkage of faulty skeletal growth with cystinuria. It appears likely that renal rickets rests on a basis of renal injury, whether this is due to chronic interstitial nephritis or to nephritis consequent on demonstrable obstruction in some part of the urinary tract, or on obstruction indicated solely by dilatation and hypertrophy of the urinary tract. The similarity in the nephritis found in the authors' three cases raises the question whether the continual excretion of cystine in the urine may give rise to chronic nephritis and hence, in some instances at any rate, to renal rickets. There is experimental evidence, from the oral administration of cystine to rats and rabbits, that the kidneys are damaged thereby. The suggestion that the kidneys of young growing animals are more susceptible to this kind of injury than are those of adults agrees with the data so far available in the human species.

Medical Journal of Australia, Sydney

2: 481-516 (Oct. 10) 1936

The Physician and the Future of Clinical Science. C. T. Champion de Crespigny.—p. 481.
Results of Treatment of Antral Infections: Analysis of Cases. T. G. Millar.—p. 487.
Allergy and Antral Infections. C. Sutherland.—p. 492.
Physical Therapy in Antral Infections. F. May.—p. 495.

2: 517-552 (Oct. 17) 1936

Manipulative Surgery. C. H. Hembrow.—p. 517.
Id. S. H. Scougall.—p. 523.
Treatment of Cancer of Cervix Uteri at the Royal Prince Alfred Hospital from Jan. 1, 1930, to Dec. 31, 1935. H. H. Schlink and C. L. Chapman.—p. 527.
Experiences in Treatment of Carcinoma of Cervix Uteri with Radium and Deep X-Ray Therapy at Sydney Hospital. H. K. Porter.—p. 533.

Medical Press and Circular, London

193: 367-390 (Oct. 28) 1936

Modern Methods of Preventing Infant Mortality. Victoria E. M. Bennett.—p. 370.
*Relationship of Infected Tonsils and Rheumatism in Children. Janet K. Aitken.—p. 373.
Acute Abdomen in Children. G. F. G. Batchelor.—p. 377.
Duke-Fingard Method of Medication as Applied to Respiratory Tract. D. F. Fraser-Harris.—p. 381.

Infected Tonsils and Rheumatism in Children.—Aitken declares that there is much evidence in support of the theory that an acute infection of the nasopharynx by hemolytic streptococcus has a definite relationship to attacks of acute rheumatism, and some evidence to support the opinion that chronically infected tonsils have an injurious effect on the rheumatic child in the sense that, although their removal may not prevent the onset of the disease, it does minimize the chance of serious cardiac complications and recurrences. A preliminary tonsillectomy, or one performed early during the course of the infection, may possibly, in the case of arthritis, render the heart less liable to be attacked, but not so in the case of chorea. Tonsillectomy in the case of carditis following arthritis seems to have a beneficial effect on the progress of the disease, but not in carditis following chorea. The analysis of 117 cases seems to show that the progress in those cases which did not require tonsillectomy and those in which tonsillectomy was done before the onset of juvenile rheumatism was rather more satisfactory than in those in which tonsillectomy was required at the onset of juvenile rheumatism. The patients who had not been tonsillectomized but who did not require tonsillectomy had the most satisfactory result, but those who had had complete tonsillectomy before the onset of the disease had nearly as good results.

Quarterly Journal of Medicine, Oxford

5: 287-444 (July) 1936

Respiratory Efficiency Tests in Asthma. J. L. Livingstone and Marjorie Gillespie.—p. 287.
Review of Recent Work on Whooping Cough. R. E. Smith.—p. 307.
Pulmonary Congestion Following Artificial Pneumothorax: Its Clinical Significance. R. V. Christie.—p. 327.
*Rôle of Calcium in Spontaneous Overbreathing Tetany. C. G. Barnes and R. I. N. Greaves.—p. 341.
Chemical and Clinical Findings in Beriberi, with Especial Reference to Vitamin B_1 Deficiency. B. S. Platt and G. D. Lu.—p. 355.
Secondary Thrush of Bronchi. J. F. D. Shrewsbury.—p. 375.
Raynaud Phenomena: Critical Review. J. H. Hunt.—p. 399.

Rôle of Calcium in Tetany.—Barnes and Greaves state that spontaneous overbreathing tetany occurs chiefly in neurotic and highly strung women. It is a manifestation most frequently of hysterical overbreathing, but in these patients it may show itself also after slight exertion, owing to overactivity of the respiratory center. Overbreathing tetany can be relieved either by the injection of calcium salts or by the production of an acidosis. It would seem, therefore, that two factors are involved in the production of the syndrome: the level of the calcium and the p_H of the blood. The object of the authors' investigations was to show that in their cases there was a definite alkalosis during tetany, and then to determine whether the onset of tetany was or was not associated with a fall in the calcium content of the cerebrospinal fluid, and hence of the diffusible calcium of the blood. The calcium in the plasma, serum and cerebrospinal fluid was estimated by a modification of the method of Kramer and Tisdall, as advised by Beaumont and Dodds. Experimentally it was found that about thirty minutes of overbreathing is required before symptoms of this tetany start. This time was greatly reduced in all clinical cases. In the two clinical cases in which the alkali reserve was estimated it rose during tetany, as opposed to a fall in the experimental cases. This may be accounted for by the fact that either the time factor is insufficient to allow complete compensation by the transposition of alkalis to the tissues or it is a fundamental lack of ability on the part of these patients to perform this reaction which predisposes to overbreathing tetany. That alkalosis was present during tetany in the patients was shown by the rise of alkali reserve and by the increased p_H of the urine. It becomes a matter for speculation as to why some patients with alkalosis develop tetany while others do not. The authors believe that the fact that they were able to relieve overbreathing tetany by the injection of a solution of a calcium salt with a p_H greater than that of the blood seems to them to be strong evidence that the tetany is not the result of alkalosis alone. They suggest, therefore, that the onset of tetany may be dependent on the total calcium present in the circulation and the reaction of the blood. The common factor is the level of the diffusible calcium, which is greatly affected by slight changes in the reaction of the blood. If this is so it can be explained why tetany should not necessarily occur when the calcium of the blood is low, provided it is the protein bound fraction of the calcium which is reduced or that there is an acidosis, as in the cases of chronic nephritis described by de Wesselow. The premonitory symptoms of overbreathing tetany may pass unrecognized if they do not develop further. Only when voluntary hyperpnea is shown to lead rapidly to the onset of tetany does the true significance of these symptoms become apparent.

Japanese Journal of Gastroenterology, Kyoto

8: 171-256 (Dec.) 1936

*Application of Richardson's Law to Disposal of Fructose by Liver. Y. Iida.—p. 171.
Influence of Aliphatic Alcohols on Pigment-Excreting Function of Liver and Kidneys: II. Effect of Methyl Alcohol Perorally Administered. Y. Iida.—p. 175.
Id.: II. Comparison of Effects of Aliphatic, One-Basic, Saturated Alcohols. Y. Iida.—p. 179.
Experimental Study on Mutual Relation Between Pancreatic and Hepatic Functions. T. Yuasa.—p. 187.
Glycolytic Action of Liver and Other Organs in Renal Disturbances. S. Numa.—p. 196.
Roentgenologic Studies on Esophagogram. N. Mizuta, I. Ri and H. Ishida.—p. 203.
Oxidoreduction and Reduced Glutathione in Liver and Kidneys in Renal Disturbances. B. Nakai.—p. 210.
Glycolytic Action of Various Organs in Hepatic Disturbances. S. Numa.—p. 215.
Contribution to Knowledge of Hyperhepatism, with Especial Reference to Synthesis of Hippuric Acid. S. Sasaki.—p. 218.

Disposal of Fructose by Liver.—Twenty-four hours after the administration of $^{10}/_{460}$ mol of each of the aliphatic monovalent, saturated alcohols (methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, n-amyl, i-amyl and n-hexyl) Iida injected intravenously 1 Gm. of fructose per kilogram of body weight into rabbits and found that the curve of fructosemia after the administration of these alcohols was usually higher than before, and the difference of the height of the two curves was enlarged in accordance with an increase of carbon atoms of the alcohol; that is, the ascent of fructosemia was marked and its descent was retarded. Only methyl alcohol was the exception. Judging from the curve of fructosemia following the intravenous injection of fructose as a liver function test, he concludes that, with the exception of methyl alcohol, the toxicity of aliphatic monovalent saturated alcohols for the liver is in general gradually strengthened with an increase of the number of carbon atoms and molecular weight of the alcohol; in other words, that Richardson's law is applicable to the disposal of fructose by the liver as well as to the azorubin-S-excreting function of the liver. It is possible that the blood sugar may be influenced to some extent immediately after the administration of alcohol, and, accordingly, fructose closely connected with dextrose may also be changed more or less at this moment. However, twenty-four hours after the administration of alcohol any direct effect of alcohol on fructose is probably negligible, though alcohol may primarily injure the liver and secondarily influence the curve of fructosemia.

Annales de Médecine, Paris

40: 185-316 (Oct.) 1936

Recent Information on Leukocytic Formula in Tuberculosis. F. Bezançon and J. Bousser.—p. 185.
*Corpuscle of Leukemic Blood. N. Fiessinger and C.-M. Laur.—p. 212.
Leukemia and Traumatism. P. Emile-Weil and J. Bousser.—p. 220.
Crypto-Erythroblastic Splenomegaly. P. Emile-Weil, P. Isch-Wall, S. Perlès and Scemama.—p. 235.
Hemolytic Disease. R. Debré, M. Lamy, G. Sée and Mme. St. Schrameck.—p. 251.
Masked Forms of Biermer's Anemia. E. Benhamou.—p. 286.
Purpura and Tuberculosis. V. Oumansky and W. Pescarolo.—p. 306.

Small Corpuscle in Chronic Leukemic Blood.—Fiessinger and Laur describe a small corpuscle that can be found in the blood in certain leukemic patients. In smears stained by the May-Grünwald method it appears as a small body most often regularly round, colored a pale blue like the cellular cytoplasm and without any trace of azurophilic chromatic particles. Its dimensions are between 4 and 8 microns. It is usually smaller than an erythrocyte. It is found in the microscopic field at about a ratio of 1:500 or 1:1,000 red cells. It appears in the form of a hemogeneous disk, more refractile than the blood cells but less brilliant than the platelets. The nature of this body is considered from the standpoint of the circumstances of its appearance and the conditions that lead to its formation. It cannot be found in the blood in early leukemia. It is seen in chronic lymphatic leukemia and chronic myeloid leukemia relatively late in the course of the disease, and generally it is contemporary with the period of radioresistance, which fact seems to possess a serious prognostic significance. Its appearance in the circulating blood seems to be related to the presence of indifferent cells and affected by certain technical conditions. The circumstances of appearance of these corpuscles direct investigation toward the conditions of their formation. It is incontestable that this terminal radioresistant phase of the leukemia corresponds to a multiplication in the circulating blood of embryonal cells. Thus the effect of the cytoplasmic fragility of the embryonal cells produces either by direct bleeding, by direct aspiration into the pipet or in making the smear a localized segmentation of the cytoplasmic portion of the cell. This results in a "lost body," which is the corpuscle discussed. Hence, they believe that the cell is an artefact; nevertheless, consideration of the special conditions that lead to its formation possesses value as a test of leukocytic fragility, and this explains its prognostic gravity.

Bronchoscopie, Oesophagoscopie et Gastroscopie, Paris

Oct. 1936 (No. 4) Pp. 329-404

*Remarks on Diagnosis of Cancer of Esophagus. A. Soulas.—p. 329.
Indications and Technic of Endobronchial Applications of Radium. P. Mounier-Kuhn.—p. 347.
Importance of Bronchoscopy in Pulmonary Tuberculosis. M. C. Myerson.—p. 352.

Diagnosis of Cancer of Esophagus.—Soulas reports the study of ten patients with regard to the early diagnosis of cancer of the esophagus and concludes that the irrefutable diagnosis of cancer of the esophagus and its histologic type can be established only by biopsy and histologic examination. Biopsy is sometimes impossible in the early phase, especially in submucous cancer and in the cervical location. Strictly speaking, this importance of the biopsy cannot be compensated for by other signs. Thus there are disorders which are harmless but which may give signs and symptoms characteristic of those classically believed to represent cancer of the esophagus. Nevertheless the early recognition of dysphagia must suggest cancer in an early phase and has a presumptive diagnosis which may later be confirmed by biopsy. In cancer of the cervical esophagus, this presumptive diagnosis may become a sufficient indication for exploration or treatment.

Bulletin de l'Académie de Médecine, Paris

116: 249-279 (Oct. 27) 1936. Partial Index

*Examination for Tubercle Bacilli by Stool Culture. F. Bezançon, P. Braun and Mlle. Aveline.—p. 259.
Cevitamic Acid and Multiple Sclerosis. J. Lépine, F. Arloing, A. Morel and A. Josserand.—p. 274.

Tubercle Bacilli in Stool Cultures.—Progress in recent years in developing satisfactory methods of culturing tubercle bacilli led Bezançon and his colleagues to investigate the possible value of taking cultures of the stools for these organisms. Their investigations were made on 231 specimens of stools. In 174 of these it was not possible to find acid-resisting bacteria either by direct examination or by cultures. Thirty-five of these constituted merely a simple control for verification of the value of the method. In nine, definite pulmonary tuberculosis was present but examination of the sputum had not demonstrated the bacilli. They believe that cultures of the stools, if not exposed to causes of possible error and if kept in a practical form, can be used as a laboratory analysis comparable to cultures of the sputum but may give positive results when the latter are negative.

Bull. et Mém. de la Soc. Méd. des Hôpitaux, Paris

52: 1303-1341 (Oct. 26) 1936. Partial Index

Multiganglionic Tuberculosis of Adult. J. Troisier, M. Bariéty and J. Dugas.—p. 1304.
*Late Prognosis of Cirrhosis of Liver. E. Chabrol and J. Sallet.—p. 1311.
Cushing's Syndrome: Case. H. Metzger, Mlle. G. Hoerner and C. Maurer.—p. 1316.
Obliterating Thrombosis of Pulmonary Artery in Tuberculous Subjects. Ameuille, J. M. Lemoine, Mlle. H. Delhomme and M. Nouaille.—p. 1326.

Prognosis of Cirrhosis of Liver.—According to Chabrol and Sallet, the uncertainty of the late prognosis of cirrhosis of the liver necessitates study. With this in mind they attempted to use the quantity of polypeptides in the blood as a prognostic index. The method of Goiffon and Spacy was used for determining the polypeptides, and the phosphovanilla method for measuring the cholalic acid of the blood. Their investigations concerned 300 patients, of whom 124 had cirrhosis. With this method of measuring polypeptides, a level of 21 mg. could serve as the dividing line of prognostic classification. When above 21 mg., the evolution is favorable in 75 per cent; when below this level, it is fatal in 70 per cent. Parallel examinations of the cholesterol and cholalic acid of the blood were made in 111 cirrhotic patients. When the level of blood cholesterol fell below 1.2 Gm. per thousand, the prognosis was unfavorable in almost all. Inversely, when the level was above 2 Gm. per thousand, the prognosis was good in 88 per cent of the cases. These observations, the authors hope, will aid considerably in forming a satisfactory opinion as to the late prognosis in cases of cirrhosis.

Schweizerische medizinische Wochenschrift, Basel

66: 1153-1200 (Nov. 21) 1936. Partial Index

"Upward Colpocleisis" in Vesicovaginal Fistulas. H. Martius.—p. 1154.
*Primary Mammary Cancers in Axilla. H. Matti.—p. 1159.
Posteczematous True Vitiligo. O. Naegeli.—p. 1167.
*Significance of Porphyrinuria for Diagnosis of Extra-Uterine Pregnancy. W. Neuweiler.—p. 1169.
*Depressive Conditions in Puerperium and Their Treatment. L. Nürnberger.—p. 1170.
Clinical Aspects and Pathologic Anatomy of Nonsuppurating Thyroiditis. F. de Quervain.—p. 1174.
*Significance of Manual Dilation of Os Uteri in Treatment of Disturbances in Dilatation of Soft Parts During Birth. A. Reist.—p. 1176.

Primary Mammary Cancers in Axilla.—Matti points out that the ectopic mammary tumors deserve attention because their diagnosis may cause considerable difficulties. He reports a case in which the previous history caused an erroneous diagnosis. Two decades previously the patient had been operated on for tuberculosis of the cervical glands; therefore a gradually increasing swelling in the left axilla was at first diagnosed as tuberculosis of the lymph nodes. Treatment with roentgen rays considerably decreased the glandular swelling in the axilla, but later there was a renewed enlargement. A progressive change in the skin finally suggested the possibility of a neoplasm, and an exploratory excision revealed a mammary carcinoma with metastases in the axillary lymph nodes. However, careful palpation of the left breast gave no indication of its involvement. Following removal of the mammary carcinoma from the axilla, changes appeared in the breast but seemingly had no connection with the axilla. Nevertheless, amputation of the breast became necessary. The author emphasizes that this and other cases indicate that in cases of axillary mammary carcinoma the breast is likewise threatened and should be removed together with the axillary carcinoma even though palpation fails to reveal involvement.

Porphyrinuria in Diagnosis of Extra-Uterine Pregnancy.—Neuweiler shows that the diagnosis of extra-uterine pregnancy may cause difficulties, as in the case of perforated extra-uterine pregnancy with the formation of hematocele. In this condition the symptoms are not alarming, the pains are not severe and the mild internal hemorrhages are not readily demonstrable; in short, the entire symptomatology is not characteristic, so that even the experienced examiner finds it difficult to differentiate it from adnexitis. The author directs attention to a chemical test, which demonstrates the presence of ether-soluble porphyrin (coproporphyrin) in the urine and which he found positive in cases of hematocele. He admits that an excessive coproporphyrinuria occurs frequently in prolonged febrile conditions, but in hematocele it appears after a relatively short time. In adnexitides, however, if they are not accompanied by severe, prolonged fever, the porphyrin reaction in the urine is normal. Since it is the differentiation between adnexitis and hematocele that is especially difficult, the appearance of coproporphyrin in the urine together with the general symptoms of the disorder is an important, perhaps the decisive, sign in the diagnosis of extra-uterine pregnancy. Since it may be accepted that porphyrin develops as the result of the decomposition of blood, its increased elimination may be expected also in other hemorrhagic abdominal tumors, such as ovarian tumors with torsion of the pedicle or myomas with extensive hemorrhagic infarction. This is actually the fact and it is therefore impossible to base the differentiation between hemorrhagically infarcted tumors and extra-uterine pregnancy on the outcome of the porphyrin test. However, the diagnosis of these tumors is usually possible without much difficulty.

Depression in the Puerperium.—Nürnberger describes the clinical histories of three women who in the first few days of the puerperium developed a more or less pronounced depressive mood with anxiety, hypochondria and feelings of inferiority. The author thinks that, in view of its appearance shortly after delivery, the condition may be grouped with the depressive puerperal psychoses. To be sure, the symptoms in the reported cases were not as pronounced as in those recorded in the psychiatric literature. No definite cause could be found for the depressive states, but in the three women the psychic disturbances disappeared following the subcutaneous injection of extract of the anterior lobe of the hypophysis. The author admits that the prognosis of these conditions might be favorable even without treatment, but he considers it helpful to know that they can be promptly counteracted by extract of the anterior lobe of the hypophysis.

Manual Dilation of Os Uteri.—Reist shows that, if a careful technic is employed and asepsis is preserved, manual dilation of the os uteri produces in suitable cases the desired results; that is, a rapid termination of the period of dilatation. It is helpful in certain cases in which the dilatation is retarded or has completely stopped, because it permits a spontaneous delivery in a manner that involves no danger for either mother or child. Manual dilation of the os uteri can be used also for the rapid opening of the soft parts for the purpose of an immediate delivery in cases in which danger appears suddenly for either mother or child. The author uses it in from 4 to 6 per cent of all deliveries and says that, if the method is used according to the indications outlined by him, there is no danger that it will become an uncritically employed obstetric intervention. On the contrary, its use will reduce the more extensive vaginal obstetric interventions and the infant mortality during birth.

Prensa Médica Argentina, Buenos Aires

23: 2541-2582 (Nov. 11) 1936

Bouillaud's Rheumatism and Intensive Salicylate Therapy. R. A. Bullrich.—p. 2541.
Extensive Congenital Nevus of Face of Pilose Semisoft, Verrucous, Pigmented Type Cured by Diathermocoagulation: Case. E. L. Lanari and J. Cateula.—p. 2544.
Prefibrillation Disturbances of Auricles. M. Benarós.—p. 2547.
Acute Anterior Poliomyelitis: Clinical Forms. A. Garay and J. J. Reboiras.—p. 2551.
Anesthesia of Stellate Ganglion and of Upper Thoracic Ganglions: Technic. A. R. Albanese.—p. 2561.
*Short Waves in Inflammation. E. V. Salerno.—p. 2563.

Anesthesia of Ganglions.—Albanese says that anesthesia of the stellate ganglion has to be associated with that of the second and third thoracic ganglions to establish the criteria for indications of resection of the ganglions. Leriche's technic has several disadvantages and only the stellate ganglion is anesthetized. In the author's technic the needle follows a short and direct course through an area which has no important nerves and vessels, the points of reference (neck of the first and second ribs) are easy to find and the stellate as well as the upper thoracic ganglions can be anesthetized. The technic is as follows: The patient is placed in the dorsal decubitus with a small pillow under the shoulders and the head in extension and rotation toward the opposite side to that in which the needle is to be introduced. A line is drawn from the tip of the angle of the lower jaw to the central point on the clavicle. The needle, which is 8 cm. long, is introduced on the line, or a few millimeters in front of it, and two fingerbreadths above the clavicle. If the external jugular vein is found at that point, the needle is introduced a few millimeters in front of it. The needle is directed inward, downward and backward, passes the anterior scalenus muscle and touches the neck of the first rib. The stellate ganglion is slightly forward. A dose of 5 or 10 cc. of a 2 per cent solution of procaine hydrochloride (without epinephrine) is injected. The needle is then slightly withdrawn, directed in front of the neck of the first rib and gently pushed in to touch the neck of the second rib. The second thoracic ganglion is injected at this point. By repeating the maneuver with the needle directed in front of the neck of the second rib to touch the third rib, the third thoracic ganglion can be injected at this point. The author does not specify the dose of 2 per cent solution of procaine hydrochloride that is injected in the second and third thoracic ganglions.

Short Wave Irradiation in Treatment of Inflammation.—Salerno reports satisfactory results from short wave irradiations in the treatment of several processes of chronic, subacute and acute inflammation as well as in certain diseases with angiospasms or viscerospasms of the smooth muscles. The number of irradiations varied from seven to ten given daily or every other day for a duration of from ten to forty minutes. Short waves constitute the best physical therapeutic agent against inflammation.

Archiv für Gynäkologie, Berlin

162: 371-646 (Oct. 23) 1936. Partial Index

Living and Healthy Child in Case of Ovarian Pregnancy. W. Schorsch.—p. 371.
*Vitamin C and Placenta. W. Neuweiler.—p. 384.
Tubal Changes Following Madlener's Sterilization Operation. K. Hartmann.—p. 407.
*Morphologic and Biologic Changes Caused by Trichomonas Vaginalis in Vagina of Pregnant Women. B. Szendi.—p. 479.
Eclampsia as Latent Disease of Female Organism Elicited by Pregnancy. G. von Bud.—p. 497.
*Menstrual Cycles and Physical Exercises. B. Škerli.—p. 516.
Effect of Continuous Administration of Unphysiologic Quantities of Estrogen on Genitalia of Female Rats. C. Kaufmann and E. Steinkamm.—p. 553.

Vitamin C in the Placenta.—Neuweiler was able to demonstrate vitamin C in the placenta by titration with indophenol, with methylene blue, according to the ferment method and by animal experiment. He found that the concentration of vitamin C in the extract is largely dependent on the method of extraction and that the technic of Fujita does not give reliable values. During the early part of pregnancy the vitamin C content seems to be slightly higher, but the author admits that this contradicts former observations and cannot be definitely proved. It appears that in the maternal side of the placenta the vitamin C content is higher than in the portion that is under the chorion plate. The vitamin C content of the placenta is dependent on the vitamin C supply available to the maternal organism. Histologic studies seem to indicate that vitamin C is stored chiefly in the outer layer of the chorionic villi. Thus the placenta seems to be a storage organ for vitamin C, probably to insure a vitamin supply for the fetus.

Trichomonas Vaginalis in Pregnant Women.—In studies on pregnant women, Szendi investigated the incidence of infestation with Trichomonas vaginalis. The infestation with Trichomonas vaginalis was discovered in 44 per cent of the 200 cases examined. In about one third of the cases the infestation caused no symptoms, in others there was foamy discharge and in about 30 per cent there was inflammation (vulvovaginitis). The discharge is caused by an acute suppurating inflammation of the vaginal wall with intradermal and subepidermal vesicles

and pustules. It is characterized by a moldlike pseudomembranous coating, superficial ulceration and pyofibrinoid infiltration of the epithelial and subepithelial layers of the mucous membrane. More serious lesions are not observable. The glycogen of the vaginal epithelium is greatly reduced. The trichomonas organism lives only in the cast-off, necrotic tissue detritus, for it could not be found in the intact tissues. The vaginal flora and the vaginal chemistry (lactic acid content and hydrogen ion concentration) are not noticeably influenced by the parasite. It lives in symbiosis with the Doederlein bacillus and it produces lactic acid. This explains the comparatively slight pathogenic significance and the fact that it is denied by many. The irritation of the vaginal wall and the leukorrhea are the results of the irritative action of the protozoon. The development of pathologic changes and their degree is dependent on the virulence of the parasite and on factors in the patient's organism. Although Trichomonas prepares the way for the entrance of pyogenic cocci, it inhibits their virulence by the production of lactic acid. In the puerperal morbidity, Trichomonas plays no important part.

Menstrual Cycles and Physical Exercises.—Škerlj analyzed the menstrual records of young women attending a school for gymnastics. In some of the young women the period of observation covered twenty-one or twenty-two months, in others only half that time. Dysmenorrheas were comparatively frequent and in some of the cases their appearance indicated a connection with bathing and swimming in cold water. Amenorrheas seemed to be more frequent during the cold period, but apparently there was a connection with the skiing courses, whereas camping trips in the summer time seemed to have no such influence. Only 20 per cent of the women showed no changes in their menstrual cycles, whereas the remaining 80 per cent showed temporary or "constant" changes. The author thinks that this high incidence proves a direct connection between the changes in the menstrual cycle and the intensive physical exercises. He advocates the prohibition of intensive training and of athletic contests and advises against all forms of heavy gymnastics during the menstrual period, emphasizing that the possibility that the menstrual changes produced by intensive physical exercises are only temporary and do not cause permanent damage should not change this attitude.

Deutsche medizinische Wochenschrift, Leipzig

62: 1905-1944 (Nov. 20) 1936. Partial Index

Significance of Diencephalic Centers for Water Exchange. H. Pette.—p. 1905.
Spirographic Control of Cardiac Activity. N. Tsamboulas.—p. 1908.
*Rapidity of Growth and Disintegration of Follicle in Ovaries: Studies on Accelerated Development in Human Subjects. E. W. Koch.—p. 1912.
Angiography of Cerebral Vessels. H. Köbcke.—p. 1915.
*Dietetic Treatment of Neurodermatitis. P. Mulzer and H. Sörensen-Petersen.—p. 1918.
Detachment of Spinous Process. E. Metge.—p. 1922.

Studies on Accelerated Development.—Koch directs attention to the fact that measurements during recent years have revealed an increase in the height of children. Morever, the second dentition, the change of voice and particularly the menarche occur earlier. However, the author maintains that the average size of adults has not noticeably increased in recent years and so he concludes that not so much the external appearance as the course of the development of man has undergone a considerable modification. He cites another investigator who made practically the same observations; namely, that in spite of the considerable increase in the size of young persons the average size of adults is not increased, because of a compensatory shortening of the duration of growth. The author further discusses the factors responsible for the accelerated growth and then describes animal experiments on this problem. By various diets and by additional ultraviolet irradiations, great differences in the lengths of various groups of rats were achieved. The experiences were interrupted on the same day; that is, when the animals were of the same chronological age. The ovaries of the animals were cut in sections and the primordial follicles were counted, for it is known that young females have more and old females have fewer primordial follicles. It was found that the number of follicles was in inverse ratio to the rapidity of growth. From this the conclusion was drawn that, although all the animals were of the same chronological age, those with the smaller number of follicles were "biologically older" and those with the greater number of follicles were "biologically younger." Thus it seems that an accelerated growth corresponds to a premature aging process.

Dietetic Treatment of Neurodermatitis.—Mulzer and Sörensen-Petersen emphasize that the regulation of the diet is one of the most important factors in the treatment of neurodermatitis and that a restriction of sodium chloride and its replacement by some other type of salt is of primary importance. They show that, in contradistinction to the local treatment, the diet is to a certain extent a causal measure and prepares the way for an effective local therapy. The latter should supply fat for the usually dry skin. The itching is often effectively counteracted by tumenol or by tar preparations.

Wiener klinische Wochenschrift, Vienna

49: 1417-1448 (Nov. 20) 1936. Partial Index

*Lymphatic Reaction and Encephalomeningitis. Anna Sucher and E. Schwarz.—p. 1417.
Relation of Certain Functions to Bilateral Symmetrical Structure of Body. M. Sachs.—p. 1424.
Differential Diagnosis of Appendicitis and of Hemorrhages from Follicle or Corpus Luteum. M. D. Manizade.—p. 1428.
Treatment of Tachycardias. F. Faltischek.—p. 1432.
*Pathogenesis of Diaphragmatic Relaxation. M. Schumann.—p. 1434.

Lymphatic Reaction and Encephalomeningitis.—Sucher and Schwarz direct attention to meningo-encephalitic complications in infectious diseases, pointing out that, if the symptoms of the primary infectious disease are fully and clearly developed, the diagnosis is not difficult but that the appearance of the cerebral symptoms during the first stage may mask the primary disorder. The authors describe the history of a girl, aged 15, who two years previously had had a mild tuberculous process in the pulmonary apex. She suddenly became ill with fever, headache, glandular swellings, splenic tumor and symptoms of meningeal and encephalic irritation. The examination of the blood disclosed a severe lymphoblastic-plasmacytic reaction with simultaneous deviation to the left of the neutrophilic leukocytes. Roentgenoscopy of the lungs revealed swellings of the lymph nodes at the hilus and a few small spots in the subclavicular region of the lung, which suggested the possibility of a hematogenic dissemination and of the tuberculous nature of the meningeal disorder. However, a blood culture according to Löwenstein remained sterile and all the symptoms disappeared in a comparatively short time. But ten days later the swellings of the lymph nodes of the spleen and of the liver and the high fever recurred. The changes in the blood were even more pronounced than in the beginning. Four days later the symptoms of the central nervous system recurred and severe convulsions developed. After seven hours of an epileptiform condition a pulmonary edema developed and the patient seemed to be in an agonal state. Spinal puncture disclosed high pressure, increased protein content and a considerable number of lymphatic cells in the spinal fluid. Gradually the symptoms as well as the blood changes disappeared and the patient recovered. The authors point out that this case is an example of a so-called metastatic encephalomeningitis which completely masked the nature of the acute infectious disease. They show that such cerebral complications are most frequent in those infectious diseases the pathogenic agents of which are not as yet completely understood and which probably take a special position in the microbiologic system. To this group belong measles, chickenpox, whooping cough and epidemic parotitis. Opinions are still divided regarding the relationship between the primary infectious disease and the cerebral complications. The authors give their attention chiefly to the changes in the blood and reach the conclusion that this case represents an encephalomeningitic complication of Pfeiffer's glandular fever. They also succeeded in detecting certain pathogenic relations between primary disorder and the cerebral symptoms to the effect that the virus of the glandular fever is responsible also for the inflammatory disorder in the central nervous system; that is, the condition is a true metastatic encephalomeningitis.

Pathogenesis of Diaphragmatic Relaxation.—Schumann reports the clinical history of a man whose symptoms resembled those of a sinistral pleurisy. However, roentgenoscopy revealed a diaphragmatic relaxation. The author mentions the most important symptoms of diaphragmatic relaxation and stresses

that roentgenoscopy is the most reliable diagnostic method. He points out that some authors are of the opinion that a congenital defect of the diaphragmatic musculature is the most important factor in the pathogenesis of diaphragmatic relaxation. This theory is based on necroptic observations during early childhood, on the frequent occurrence of diaphragmatic relaxation with other congenital defects, such as harelip, cleft palate and spina bifida, and on the almost exclusive sinistral development of the relaxation. The author points out further that another group of investigators considers diaphragmatic relaxation the result of lesions of the phrenic nerve. It has been stated that processes which cause changes in the phrenic nerve should be searched for chiefly in the region of the fourth cervical vertebra. They may be tumors, spondylitis, fractures, luxations, pachymeningitis, spinal hemorrhages and tuberculous and syphilitic meningeal processes. In the present patient the diaphragmatic relaxation was the result of a paralysis of the phrenic nerve, which in turn was produced by a tumor of the fourth cervical vertebra.

Polska Gazeta Lekarska, Lwów

15: 925-940 (Nov. 29) 1936

Neurosis and Sympathetic Nervous System. M. Zieliński.—p. 925.
Monocytic Leukemia as Disease of Hematopoietic System. J. Kowalczykowa and A. Sokołowski.—p. 927.
Thrombosis and Embolism in Obstetric and Gynecologic Cases at Clinic of Lwów (1925-1935). J. Lenczowski.—p. 933.
*Local Anesthesia in Some Minor Gynecologic Operations. F. Rauchberger.—p. 936.

Local Anesthesia in Minor Gynecologic Operations.—Rauchberger calls attention to the fact that local anesthesia in gynecologic cases has lately attained wide application, especially in cases of miscarriage or abortion and in cases in which the neck of the uterus has to be dilated, which usually is an extremely painful ordeal necessitating a general anesthetic and more adequate assistance and which often results in a disturbance of the lungs. All this has been done away with by application of local anesthesia. During the last two years the author has performed operations of various types in 340 cases with satisfactory results: some were plastic operations and there was even a cesarean section. Although he has tried other preparations for local anesthesia, he found none as satisfactory as that made up of 0.2 Gm. of procaine hydrochloride, 2 drops of epinephrine solution, 0.03 Gm. of potassium sulfate, 0.06 Gm. of sodium chloride and 20 cc. of distilled water.

Sovetskaya Khirurgi, Moscow

Pp. 377-552 (No. 3) 1936. Partial Index

Surgery of Cardiac Diseases. P. A. Gertsen.—p. 379.
*Transfusion of Conserved Blood. D. N. Belenkiy.—p. 394.
Treatment of Clean Postoperative Wounds Without Dressings. A. A. Lebedev.—p. 424.
Four Hundred Punctures of Posterior Cystern of Brain. I. S. Royzen.—p. 427.
Postanginal Peritonitis. V. V. Popov.—p. 434.

Transfusion of Conserved Blood.—According to Belenkiy, conserved blood undergoes in vitro biochemical and morphologic alterations of a destructive character terminating in a complete loss of its functional characteristics. These alterations depend to some extent on the character of the medium in which it is conserved. Blood undergoes less deterioration in a dextrose-citrate solution than in a citrate-saline solution. Because of the progressive character of the deterioration, the author feels that conserved blood should be regarded as a medium containing morphologic and chemical components of the blood rather than blood tissue. The properties of the conserved blood permit its use for the purpose of blood replacement as well as for that of stimulation. Excellent therapeutic effect was obtained in chronic anemia of various types in which the usual medicinal and dietetic regimens failed. It likewise proved its efficiency in diseases associated with disturbed metabolism and trophic dysfunction of the nervous system. A comparative study of the effect of fresh blood transfusions in the same type of disease demonstrated the inferiority of the conserved blood, especially when kept for twelve or more days. The effect of transfusion of conserved blood in acute hemorrhage with or without shock was prompt and efficient. The gravely lowered blood pressure rapidly rose to normal levels and remained so. This effect was always more pronounced when a relatively freshly conserved blood, such as that of from three to seven days, was used. Cases of acute anemia or of traumatic shock are less likely to have a reaction following the transfusion of conserved blood than following that of fresh blood. The hemostatic effect of conserved blood in hemorrhagic diathesis was found to be inferior to that of fresh blood. The author concludes that transfusion of fresh blood is still the method of choice but that under certain conditions, such as mass traumatism in a combat, the use of conserved blood may have certain advantages over the former.

Folia Medicinae Internae Orientalia, Jerusalem

2: 87-176 (April) 1936. Partial Index

Diabetes Mellitus in Jews. H. Strauss.—p. 87.
Convalescent Serum in Treatment of Poliomyelitis. A. Netter.—p. 101.
*New Neurologic Syndrome Occurring in Palestine During Summer Months. H. Zondek and H. Stark.—p. 109.
Clinical Aspects of Pulmonary Blastomycosis. J. Weiser.—p. 115.
Serodiagnosis in Diseases of the Liver. L. Schindel.—p. 149.
*Disinfection Experiments on Fruits from Various Origins and Comparative Studies on Efficacy of Various Methods of Disinfection. L. Olitzki and J. Gurevitch.—p. 157.

Neurologic Syndrome Occurring in Palestine.—Zondek and Stark describe a neurologic disorder that they observed in a considerable number of persons during the hot summer months in Palestine. An attempt failed to identify the disorder as one already known. It is characterized by violent headache, pains in the limbs, increased psychic irritability, spastic disturbances in the reflexes and occasional subfebrile temperature. There are no other disturbances on the part of the central nervous system. The disorder is transient. It is assumed that the disorder is caused by an increase in cerebral pressure resulting from abnormal insolation. The authors give the clinical histories of six cases.

Disinfection Experiments on Fruits.—Olitzki and Gurevitch demonstrate that the disinfection of fruits before consumption is an indispensable hygienic measure in Palestine. In order to prevent bacillary infections, the authors recommend that the fruits be dipped three times into a 1:10,000 solution of potassium permanganate with 0.5 per cent of acetic acid. After each dipping the fruits should be rinsed, but the potassium permanganate should act each time for five minutes. However, the authors admit that chemical disinfectants as a rule have only a slight effect on protozoa and worm eggs. Like other investigators, they found that boiling water is the only effective agent against amebas. They reach the conclusion that, whenever there is an increase in cases of typhoid and bacillary dysentery, fruits should be disinfected with dilute potassium permanganate. On the other hand, disinfection with boiling water is imperative in all cases in which there is a possibility of infection with intestinal protozoa.

Hospitalstidende, Copenhagen

79: 1137-1148 (Oct. 27) 1936

*Investigations on Sedimentation Reaction in Dementia Paralytica. K. H. Fremming and J. Madsen.—p. 1137.

Sedimentation Reaction in Dementia Paralytica.—Fremming and Madsen state that certain normal sedimentation reaction was found in only 20 per cent of fifty-three cases of recent cerebrospinal syphilis, mainly dementia paralytica; the sedimentation reaction was definitely increased in about 50 per cent. Intercurrent somatic disorders were established in only three cases as being the cause of the high reaction. Low sedimentation reaction and marked changes in the spinal fluid point to a more superficial form of cerebral syphilis and constitute a favorable prognostic sign, while low sedimentation reaction and slight changes in the spinal fluid indicate an older stationary process with but slight prospect of remission after malaria treatment. High sedimentation reaction in a patient with weak changes in the spinal fluid points to a complicating medical disorder. High sedimentation reaction, if not due to intercurrent diseases, does not contraindicate malaria treatment. Under malaria treatment a marked rise in the sedimentation reaction occurs, but in differing degrees. In some cases the sedimentation reaction falls after the fourth or fifth attack of fever, in spite of continued rises in temperature; further investigations are necessary to determine whether this depends on hepatic injury with consequent lowered fibrin production.

Norsk Magasin for Lægevidenskapen, Oslo

97: 1113-1272 (Nov.) 1936

Bronchoscopy in Patients with Pulmonary Tuberculosis. H. Rasmussen. —p. 1113.
*Anemia in Patients with Pulmonary Tuberculosis. H. Rasmussen. —p. 1125.
Combination of Gold Treatment and Pneumothorax in Tuberculous Caverns of Lung: Casuistic Report. A. H. Brinchmann.—p. 1134.
Gold Intoxications. K. Hübert.—p. 1144.
Indication for Thoracoplasty from Internal Standpoint. A. Tuxen. —p. 1152.
Roentgen Examination of Lungs in Patients with Thoracoplasty. J. Frimann-Dahl.—p. 1163.
*Total Thoracoplasty in Pulmonary Tuberculosis. M. H. Gjessing. —p. 1171.
*Partial Thoracoplasty in Pulmonary Tuberculosis. C. Semb.—p. 1194.
*Surgical Treatment of Pulmonary Tuberculosis. J. Holst.—p. 1211.

Anemia in Patients with Tuberculosis.—Rasmussen says that of 460 patients with pulmonary tuberculosis 12 per cent had anemia, and of the 343 with positive tubercle bacilli in the sputum, 15 per cent. There was no difference between the kind or extent of the tuberculous process in the 409 nonanemic and the fifty-seven anemic patients and there is little evidence that the tuberculous process in itself has a deleterious effect on erythropoiesis. Treatment with iron resulted in recovery from the anemia in 60 per cent of the cases. The reaction to iron, together with the frequency of achlorhydria or hypochlorhydria, indicates a disturbance in the iron metabolism. In thirteen cases the anemia depended on spread of the tuberculosis to other organs, particularly intestinal tuberculosis with diarrhea. In ten cases the anemia was due partly to complications, partly to unknown causes. Since the majority of the anemias in pulmonary tuberculosis respond to iron therapy, systematic hemoglobin examinations and treatment of the anemias with iron seem to be of importance in the treatment of pulmonary tuberculosis.

Total Thoracoplasty in Pulmonary Tuberculosis.—Gjessing reports the results in ninety-seven cases of total and subtotal thoracoplasty. The operative mortality was 9.3 per cent. He says that the indication for this intervention includes patients for whom it is a last resort. It offers the patient about a 45 per cent chance of becoming capable of working and free from symptoms and about a 75 per cent chance of improvement with ability to work for a longer or shorter time, while the chance of unchanged condition or fatal outcome is about 25 per cent. He believes that improved results may be obtained by (1) operation in a quiescent phase of the disturbance and adequate observation after operation, calling for extension of the cooperation between surgeon and internist, and (2) timely collapse treatment in men with pulmonary tuberculosis on the right side, so that the intervention may be as small as possible, as the highest mortality occurred after thoracoplasty in one session of treatment in these cases. Further, while the technical performance of total thoracoplasty is usually not difficult and rarely the determining factor in the operative mortality, it does affect the degree of collapse produced. Extirpation of the upper ribs, together with exarticulation of the ribs in the costovertebral joint in cases of larger cavities at the top of the lung, is a technical advance.

Partial Thoracoplasty in Pulmonary Tuberculosis.—Semb's material consists of 147 cases of thoracoplasty with extrafascial apicolysis, with ten deaths within two months. Examination of ninety-nine patients after from one to three and three-fourths years shows sixty-seven free from bacilli and fifty-nine wholly or partly capable of working. One of the advantages of the method is access to collapse of the other lung. Particularly individualized treatment in short sessions have been given in forty-five cases during the last year and a half, with one death within two months, or 2 per cent mortality, and with complete collapse of the cavity for the time being and freedom from bacilli in forty-two cases.

Surgical Treatment of Tuberculosis.—Holst's principle is radical resection of the upper ribs, plastic operation of the soft tissues, consisting in division of the periosteum and soft tissues of the upper ribs, and a radical apicolysis. A flap of periosteum is produced which forms a lid over the collapsed lung apex. In this position the ribs are regenerated. The large wound cavity over the apex of the lung is filled with exudate and air. This wound cavity pneumothorax and the exudate press together the pulmonary apex, the wound cavity exudate acting as a natural filling. It is resorbed after two or three months. The material comprises ninety-two cases in which operation was performed according to the technic described, with two deaths, and 157 cases, including more unfavorable cases than the first group, in which operation was done by other methods, with about 8 per cent mortality. The author states that in uniform cases the mortality rate is probably not higher in Semb's extrafascial modification of apicolysis than with the technic here presented.

Ugeskrift for Læger, Copenhagen

98: 1049-1084 (Oct. 29) 1936

Clinical Investigations on Occurrence of Sheep Blood Corpuscle-Agglutinin (Heterophile Antisubstance). O. Bang and M. Kristensen. —p. 1049.
*So-Called Recurrence of Scarlet Fever. E. Gottlieb.—p. 1054.
*Pulmonary Tuberculosis Caused by Bovine Type of Bacillus: Thirty-Three Cases. P. Mourier.—p. 1058.
Remission During Course of Acute Aleukemic Leukemia, Observed in Two Cases During Treatment with Cevitamic Acid. P. Plum and S. Thomsen.—p. 1062.
*Attempts at Treatment with Cevitamic Acid in "Schönlein-Henoch's Purpura." Alice Lønberg.—p. 1067.
Significance of Alpha Dinitrophenol in Treatment of Obesity. E. Gudiksen.—p. 1072.
Process of Healing in Free Transplantation. E. Dujardin.—p. 1073
Pellagra, Achylia, Night-Blindness: Short Travel Letter. Johanne Christiansen.—p. 1073.

So-Called Recurrence of Scarlet Fever.—Thirty cases of recurrence of scarlet fever in hospitalized children during the last two and a half years are reported. The cases occurred from the ninth to the fifty-sixth day after the first onset of scarlet fever, mostly between the twentieth and thirtieth days. In nineteen cases peeling took place twice. No deaths resulted, but the second cases were on the average more grave than the first and were followed by complications in 60 per cent as against from 18 to 20 per cent in the first cases, milder complications being included. In Gottlieb's opinion the most probable explanation of the recurrence is cross infection from other patients with streptococci of different type than that which caused the original attack of scarlet fever. This assumption seems to him supported by the finding of different types of streptococci in different scarlet fever patients (Smith, Griffith) and by the occasional establishment in children in hospital wards of streptococci of different type than that originally established, to which the disorder was presumably due.

Pulmonary Tuberculosis from Bovine Type of Bacillus.—Determinations of type of these thirty-three cases were made by the State Serum Institute. Mourier thinks that transmission from cattle to man may have occurred in twenty-nine of the cases. The clinical course and prognosis, he says, apparently resemble those in pulmonary tuberculosis due to tubercle bacilli of the human type.

Cevitamic Acid in "Schönlein-Henoch's Purpura."—Daily intramuscular injections of cevitamic acid, in all 3,800 mg., administered to Lønberg's patient, a boy aged 4, had no effect on the course of the disease. There was no cevitamic acid deficiency before the start of treatment.

98: 1127-1148 (Nov. 12) 1936

Indication for Simple Chiseling of Mastoid Process to Preserve Hearing. S. F. Nielsen.—p. 1127.
Eye Movements in Reading. H. Ehlers.—p. 1131.
Treatment of Fluor Flavus with Hexylresorcinol and Estrogenic Substance. M. Nielsen.—p. 1133.
Acute Phosphorus Intoxication: Case. H. Brocks.—p. 1134.
*Remission During Course of Leukemia. S. Heinild and E. Schiødt. —p. 1135.

Remission During Course of Leukemia.—In Heinild and Schiødt's case of acute myeloblastic leukemia, the number of white blood corpuscles became normal after treatment with cevitamic acid; at the end of the treatment the number of white blood corpuscles increased. In their case of chronic lymphatic leukemia, cessation of the tendency to hemorrhage and rise in the thrombocyte count occurred during the first treatment with cevitamic acid, which was accompanied by roentgen treatment; the hemorrhages also ceased on the second course of treatment with cevitamic acid. In their two cases of chronic myeloid leukemia, no direct effect of the treatment with cevitamic acid was seen, but the remission after the succeeding roentgen treatment was more complete than is usual in such cases.